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United States
Department of Agriculture
Forest Service

MAP UNIT TABLES

Subsections

Ecological Units of the Eastern United States
First Approximation
1995



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MAP UNIT TABLES -- SUBSECTIONS

Ecological Units of the Eastern United States -- First Approximation

USDA Forest Service

Southern Region

Eastern Region

Northeastern Area State and Private Forestry

Northeastern and North Central Forest Experiment Stations

Southern Research Station

Washington Office

1995

CITATION

Keys, Jr., J.; Carpenter, C.; Hooks, S.; Koenig, F.; McNab, W.H.; Russell, W.;
Smith, M.L. 1995. Ecological units of the eastern United States - first
approximation (map and booklet of map unit tables), Atlanta, GA: U.S.
Department of Agriculture, Forest Service. Presentation scale 1:3,500,000;
colored. Also available on CD-ROM consisting of GIS coverage in ARCINFO
format and map unit descriptions of subsections and sections.

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MAP UNIT TABLES -- SUBSECTIONS
Ecological Units of the Eastern United States -- First Approximation

INTRODUCTION

Background

The U.S. Forest Service, in participation with numerous individuals of federal and state agencies and non-governmental organizations, is preparing an ecological map and characterization data of the eastern United States. Ecological mapping and description follow the Forest Service's National Framework for Ecological Units (ECOMAP, 1993).

This subregional (subsection) presentation represents a status or first approximation of an effort to develop units which integrate, in an ecologically meaningful way, information from individual disciplines, single-purpose maps and existing regionalizations. This interdisciplinary approach highlighted the need for continued efforts to overcome geopolitical and administrative bias in primary data sources. Development of ecological units and descriptive data is an iterative process which will progress as additional information becomes available and from peer review and comments by users of this information.

This booklet contains a brief description of data used to differentiate and characterize ecological units at the subsection level, map unit tables for the map: Ecological Units of the Eastern United States -- First Approximation, selected references and glossary, acknowledgements, some additional references used by each Region of the Forest Service, and a list of scientific names of common vegetative species that comprise alliances used.

Development of the Information

The mapping and description of ecological units involved many people and disciplines at the federal and state level including non-governmental organizations. Mapping was compiled at scales of 1:500,000 and 1:1,000,000 by regional or state teams and recompiled at a scale of 1:1,000,000 for this publication.

Many national, regional and state sources of information were used in identifying ecological units. Some significant ones included: Quaternary Geologic Atlas of the United States, U.S. Geological Survey; State Soil Geographic Soil Database, Natural Resources Conservation Service; Ecoregions and Subregions, Environmental Protection Agency; Hammond's Classes of Land Surface Form, U.S. Geological Survey; State Natural Heritage Maps and Classifications; Physiographic Maps; Land Cover Types; and State Natural Habitat Regions and Vegetative Life Zones of Puerto Rico.

During map compilation at 1:1,000,000, regional and state teams followed steps that provided for integration of source information and fine-tuning of section, province, division and domain lines mapped in Ecoregions and Subregions of the United States. 1994. (Avers et al). In their consideration of aquatic systems during ecological mapping and description, compilers also used the Hierarchical Framework of Aquatic Ecological Units of North America (Maxwell, et. al.) and Cowardin's classification of wetlands and deep water habitats of the United States.

Each map unit is described by physical and biological components, or elements, that have a significant influence on ecological relationships, processes, and potential. In addition to physical and biological components, principal classes of land use are included to give insight into human utilization of land and water resources within ecological units. Following is an explanation of the information used to describe components associated with each map unit.

Subsection - Map unit identification symbol and name.

Geomorphology; Elevation - Geomorphology refers to the classification, description, nature, origin, and development of present landforms. Landform terminology and definitions generally follow those used in by Hammond (1970). Elevation is the range of altitudes occurring in the map unit.

Quaternary geology; Stratigraphy and lithology - Quaternary geology refers to the system of deposits corresponding to the second period of the Cenozoic era, following the Tertiary. It begins two to three million years ago and extends to the present and consists of recently formed, generally unconsolidated deposits such as glacial products, water and wind deposits, and deposits of volcanic origin. Stratigraphy is the arrangement of rocks as classified by geographic position and chronological order. Lithology is the description of rocks on the basis of such physical characteristics as manner of origin, composition and texture. The following abbreviations are used with this component:

Dev. - Devonian
Il. - Illinoian
Miss. - Mississippian
Paleo. - Paleozoic
Penn. - Pennsylvanian
Wis. - Wisconsinan

Soil taxa; Temperature and moisture regimes - Characteristics of soils are presented for each subsection by listing soil taxonomic units at the great group level in the Soil Taxonomy (USDA Soil Conservation Service 1992). Biological processes in the soil are controlled predominately by soil temperature and moisture. Temperature and moisture regimes are properties of the whole soil rather than specific horizons and are included to help characterize the soil environment of ecological units.

Climate - P(in) - The average annual precipitation in inches. If precipitation varies significantly across the ecological unit, the range is presented.

T(F.) - The average annual temperature in Fahrenheit. If temperature varies significantly across the ecological unit, the range is presented.

GS(d) - The average length of growing season (days). If the growing season varies significantly across the ecological unit, the range is presented. Growing season is the number of days when air temperature is above freezing.

Potential vegetation - Potential vegetation for terrestrial map units is approximated by the alliance level of The Nature Conservancy's draft regional community classifications being developed as a cross-walk of State Natural Heritage classifications by various regions for the eastern United States (Faber-Langendoen, D. 1993, Sneddon, L.; Anderson, M.; Metzler, K. 1994, Weakley, A.; and others. 1995). The common names for regional alliances shown in this table differ in format from region to region as they have not been standardized. The following abbreviations are used as suffixes with alliances for the Southeast Region of The Nature Conservancy:

FA - Forest Alliance
WA - Woodland Alliance
SWA - Sparse Woodland Alliance
SA - Shrubland Alliance
SSA - Sparse shrubland Alliance
DSA - Dwarf Shrubland Alliance
SDA - Sparse Dwarf Shrubland Alliance
HA - Herbaceous Alliance.

Information on potential fauna is provided for some aquatic ecological units and was obtained from The Encyclopedia of Geomorphology (Fairbridge, W.F. 1968). Assistance from state organizations is necessary to develop more useful information on potential for aquatic fauna.

Surface water characteristics - Relative occurrence and distinguishing characteristics of rivers, streams, lakes, and wetlands.

Human use - Major human use of the ecological unit that affects the potential of vegetation or fish.

Tables of the above attributes are also being provided with the map. This will allow for partners without a CD-ROM reader to immediately use the information. These tables are arranged by Section, and only the most predominant descriptors are listed under each categorical element. Where several descriptors are listed, they are arranged by decreasing importance or prevalence within a Subsection. The term "Reserved" is used to indicate that descriptive information has not been identified for a component. Omitted information may be supplied in successive CD-ROM and map updates.

Suggestions for Users

The USDA Forest Service is a charter member of a federal interagency and interdisciplinary approach to delineate and describe common ecological units of the United States. The map, supporting map unit tables, and CD-ROM information should be considered a draft of the current status of the Forest Service and participating federal and state agencies in ecological mapping at a scale of 1:1,000,000 in the eastern United States. Delineation of ecological units is a complex and interactive, iterative process that continually evolves as knowledge increases, and users are urged to participate in the improvement of the accuracy of the map and descriptive information.

INFORMATION AVAILABLE ON CD-ROM

Also available in limited quantities is a Compact Disc-Read Only Memory (CD-ROM) containing 1)an ARC file of the map: Ecological Units of the Eastern United States -- First Approximation with GIS coverage in ARCINFO format (Version 7.0), 2)imagery for use in association with the ARC file, and 3)descriptions of ecological units (an update of Sections is included). The CD-ROM is being provided to supplement the map and allow partners more flexibility in the use and review of the information.

For users who desire a CD-ROM of the map and map unit information, contact Jim Keys, Southern Region or Constance Carpenter, Northeastern Area, State and Private Forestry. Quantities are limited and will be distributed by request only. Data on the CD-ROM are arranged so that similar data types are under the following directory names:

- ROOT Directory: Includes this file (README.1ST) and an ArcView 2.1 project file (EASTWIDE.APR) which is constructed to access data from the root directory of drive D. If the CD-ROM drive on your unit is other than D, you must redirect ArcView by answering all of the "where is" questions properly or edit the project file replacing "d:" with the proper drive letter on your unit.
- COVERAGE: ArcINFO coverages of state boundaries, National Forest and Grassland boundaries, and the ecological unit boundaries are located in this directory.
- IMAGES: There are four images with associated world files in this directory: shaded relief, color elevation, and images of the printed map, one at scanned at 250 dpi and another version of the same file resampled to a resolution of 125 dpi.
- TEXT: The files in this directory include a narrative description of the ecological units in WordPerfect 4.2 and ASCII format, and summary tables of this information in Microsoft Excell and dBase IV format.
- SECTIONS: This directory extends from the TEXT directory. The files in this directory provide narrative descriptions of each section along with bibliography, glossary and principal compilers.

A README.TXT file is included in each directory with descriptions of the files found at that level.

In addition to data already provided in Map Unit Tables for subsections, the CD-ROM includes Major Land Resource Areas (MLRA) and EPA Ecoregions as well as potential fauna for some ecological units that are solely aquatic.

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

212A AROOSTOOK HILL AND LOWLANDS SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate-----			Potential Vegetation	Surface water characteristics	Human use
				P(in)	T(F.)	Gs(d)			
212Aa Aroostook Hills and Lowlands	Open low mountains; 200-2500 ft.	Wis. loamy-sandy loamy till; Paleozoic pelite-sandstone- conglomerate	Haplorthods, Epiaquepts, Endoaquepts; Frigid, udic, aquic	36	39	109	Sugar Maple-Birch-Beech, Red Spruce-Balsam Fir Forest, Pine-Heath Woodland	Few lakes, ponds, rivers, numerous streams	Forestry Agriculture
212Ab Aroostook Lowlands	Plains with high hills; 100-1000 ft.	Wis. loamy-sandy loamy till; Silurian pelite- sandstone-limestone	Haplaquepts, Haplorthods; Frigid, udic, aquic	38	40	110	Sugar Maple-Birch-Beech, Red Spruce-Balsam Fir Forest, N. Red Oak-White Pine Forest	Numerous lakes, rivers, streams, large wetlands	Forestry Agriculture

212B MAINE-NEW BRUNSWICK FOOTHILLS AND LOWLANDS SECTION

212Ba Central Maine Foothills	Low mountains; 200-1200 ft.	Wis. sandy loam till, marine deposits; Pale- ozoic calcareous sand- stone,limestone,pelite	Borofolists, Haplorthods, Epiaquepts; Frigid, udic, aquic	41	42	131	Sugar Maple-Birch-Beech, Red Spruce-Balsam Fir Forest and Wetlands, N. Red Oak-White Pine Forest	Numerous large lakes, rivers and streams, few wet- lands	Forestry Agriculture
212Bb Maine/New Brunswick Lowlands	Open high hills; 100-800 ft.	Wis. loamy-sandy till, marine silt-clay; Dev- onian calcareous sand- stone, limestone, mon- zonite	Epiaquepts, Haplorthods; Frigid, udic, aquic	42	42	141	Sugar Maple-Birch-Beech, Red Spruce-Balsam Fir Forest, N. Red Oak-White Pine Forests, N. Cedar Limestone Woodland	Common lakes,ponds rivers,stream,and large wetlands	Forestry Agriculture

212C FUNDY COASTAL AND INTERIOR SECTION

212Ca Maine Eastern Interior	Open hills; 100-800 ft.	Wis.loamy-sandy till, Devonian alkali feld- spar syenite-biotite granite	Haplorthods, Epiaquepts, Borosaprists; Frigid, udic, aquic	44	42	139	Sugar Maple-Birch-Beech, Maritime Red Spruce-Balsam Fir, N. Red Oak-White Pine Forests, N. Red Oak Summit Woodland	Common lakes,ponds and streams,few rivers;few,large wetlands	Forestry Agriculture Rural
212Cb Maine Eastern Coastal	Plains with hills: 100-300 ft.	Quaternary marine silt-clay, sandy loam till; Devonian gabbro diorite, monzonite diorite, quartz monzo- nite	Haplorthods, Epi- aquepts, Endoaquods, Borofolists; Frigid, udic, aquic	47	43	152	Sugar Maple-Birch-Beech, Maritime Red Spruce-Balsam Fir, N. Red Oak-White Pine Forests, Freshwater Tidal Marsh	Coastal,saltmarsh, few lakes,ponds, rivers,streams	Rural Agriculture Recreation

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

212D CENTRAL MAINE COASTAL AND EMBAYMENT SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
212Da Central Maine Embayment	Open low mountains; 100-1000 ft.	Quaternary marine silt-clay, sandy loam till; Paleo. sandstone granite, grandiorite	Haplorthods, Epiquents; Frigid, udic, aquic	39	44	125	Sugar Maple-Birch-Beech, Maritime Red Spruce-Balsam Fir, Oak-Hickory-Ash Dry Forest	Numerous rivers, streams, ponds and lakes; large wet- lands	Forestry Agriculture Recreation
212Db Penobscot Bay Coast	Plains with hills; 100-500 ft.	Quaternary marine clay-silt, sandy loam till, rock; Paleozoic calcareous sandstone; mafic-felsic volcanics	Haplorthods, Epiquents, Eutrochrepts; Frigid, udic, aquic	44	42	123	Sugar Maple-Birch-Beech, Maritime Red Spruce-Balsam Fir, Forests, Maritime Com- munities, Pitch Pine-Scrub Oak Communities	Coastal; few small ponds, rivers and streams	Rural Recreation
212Dc Casco Bay Coast	Plains with hills, drowned coastline; 100-500 ft.	Quaternary marine clay-silt, sandy till; Paleozoic granite, sulfidic pelite	Haplorthods, Epi- quents, Eutrochrepts Borofolists; Frigid, udic, aquic	48	45	143	Sugar Maple-Birch-Beech, Red Spruce-Balsam Fir Forest, Atlantic White Cedar Swamp	Coastal; few lakes, ponds, streams, or wetlands	Rural Recreation

212E ST. LAWRENCE AND CHAMPLAIN VALLEY SECTION

212Ea St. Lawren- ce Glacial Marine Plain	Irregular plains; 300-1200 ft.	Quaternary marine silt-clay-sand-gravel, sandy till; Paleozoic sandstone, carbonates	Ochraqualfs Eutro- chrepts, Haplaquepts Borosapristis; Frigid, udic, aquic	33.6	42.9	142	Sugar Maple-Birch-Beech Forest	St. Lawrence Sea- way; rivers, wet- lands, lakes, de- ranged drainage	Agriculture Forestry
212Eb St. Lawren- ce Till Plain	Plains with hills, ground moraine; 400-1200 ft.	Quaternary silty clay -silt-loamy till; Paleozoic sandstone, siltstone, dolostone	Ochraqualfs, Eutro- chrepts, Haplaquods, Haplorthods; Frigid, udic	35.9	43.0	124	Sugar Maple-Birch-Beech Forest, Red Maple-Black Ash Seepage Swamp	Moderate gradient midbranch streams	Forestry Agriculture
212Ec Champlain Glacial Lake and Marine Plains	Plains with hills; 100-1000 ft. (1287 ft.)	Quaternary marine- lake silt-clay, delta sand-gravel; Paleozoic metasedimentary	Hapludalfs, Eutrochr- epts, Ochraqualfs, Udi psamment; Mesic-frig- id; udic-aquic	33	44	143	Sugar Maple-Birch-Beech Forest, Oak-Heath Dry Forest, Silver Maple Floodplain Forest	Lake Champlain; rivers, streams, wetlands, numerous lakes, ponds	Agriculture Forestry
212Ed Champlain Hills	Plains with high hills, ground mor- aine; 400-1900 ft.	Wis. loamy-sandy loamy till, delta sand-gra- vel; Paleo. dolomite- quartzite-slate-schist	Haplorthod, Eutro- chrept, Udipsamment, Haplaquepts; Frigid mesic, udic-aquic	35	45	144	Sugar Maple-Birch-Beech, Sugar Maple-Chinquapin Oak Forests, N. Talus Slope Woodland	Moderate gradient streams and rivers few lakes, ponds, wetlands	Forestry Agriculture
212Ee St. Lawren- ce Glacial Lake Plain	Irregular plains; 300-800 ft.	Quaternary lake sand- gravel, sandy till; Proterozoic carbonate, Ordovician limestone	Dystrochrept, Ochra- qualfs, Humaquepts, Hapludalfs; Frigid, udic	36	45	142	Sugar Maple-Birch-Beech Forest, Red Maple-Black Ash Swamp	Low gradient streams, lakes, wetlands	Agriculture Forestry

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

212F NORTHERN GLACIATED ALLEGHENY PLATEAU SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
212Fa Cattaraugus Highlands	Plains with hills; ground-end moraine; 1200-2100 ft.	Wis. loamy till, out- wash sand-gravel, al- luvium; Devonian shale shaley sandstone	Fragiochrept, Dystro- chrepts, Ochraqualf, Hapludalfs; Mesic, frigid, udic	42	44	121	Oak-Hickory-Ash Dry Forest, Sugar Maple-Birch- Beech Forest	Dendritic, upper branch and head- water streams	Agriculture Forestry
212Fb Central Allegheny Plateau	Open high hills, ground moraine, valley fill; 700-2000 ft.	Wis. loamy solifluct- ion-till deposits, glaciofluvial, allu- vium; Dev. sedimentary	Fragiochrept, Dys- trochrept; Mesic, udic	38	45	135	Oak-Hickory-Ash Dry Forest Oak-Pine Dry Forest, Sugar Maple-Birch-Beech Forest	Extensive dendri- tic stream net- work	Agriculture Forestry
212Fc Eastern Allegheny Plateau	Open high hills; ground moraine; 1000-1600	Wis. thick loamy-sandy loam till, alluvium, glaciofluvial; Devon- ian sandstone, shale	Fragiochrept, Dys- trochrepts; Mesic- frigid, udic	46	47	147	Oak-Hickory-Ash Dry Forest Pin Oak-White Oak Flat- woods, Oak-Pitch Pine Woodland	Headwater streams, small reservoirs	Forestry Agriculture
212Fd Pocono Plateau	Broad, undulating upland surface, dissected margins 1200-2320 ft	Wis. sandy loamy till; Dev. sandstone, silt- stone, shale, conglome- rate, limestone, chert	Fragiochrepts, Dystro- chrepts; Mesic, udic	40 44	48 50	160	Sugar Maple-Birch-Beech Forest, Oak-Hickory-Ash Dry Forest, Hemlock-Hardwood Ravine Forest	Degrading, head- water streams	Forestry Recreation

212G NORTHERN UNGLACIATED ALLEGHENY PLATEAU

212Ga Allegheny High Plateau	Mature, dissected plateau, high hills 1000 to 2400 ft.	Pleistocene sandy clay colluvium, stratified sand-gravel in valleys Paleozoic sedimentary	Fragiudults, Hapludults, Dystrochrepts; Mesic, aquic	33 43	43 59	80 126	Oak-Hickory-Ash Dry For- est, Sugar Maple-Birch- (Beech Forest, Oak-Pine- Dry Forest	Prominently incised dendritic pattern, many perennial streams	Forestry Oil/Gas, Recreation Agriculture
212Gb Allegheny Deep Valleys	High hills, low mountains, deep valleys. 1300 to 3000 ft.	Pleistocene sandy clay colluvium, stratified sand-gravel in valleys Paleozoic sedimentary	Fragiudults, Hapludults, Dystrochrepts; Mesic, aquic	30 44	45 55	99 170	Sugar Maple-Birch-Beech Forest, Oak-Hickory-Ash Dry Forest, Oak-Pine Dry Forest	Deeply incised, dendritic drainage pattern, many perennial streams	Forestry Recreation Agriculture

212H NORTHERN GREAT LAKES SECTION

212Ha Gwinn/ Deerton Outwash and Sand Ridges	Outwash and sand ridges, smooth plains, open hills 600 - 1515 ft.	Wis. alluvial sand, sandy loam and rocky loamy till; Cambrian sandstone	Haplorthod; Fragiorthods, Psammaquents, Sideraquods, Histo- sols; Frigid, udic	27 31	38 41	100 140	Jack Pine Forest-Woodland, Black Spruce Swamp-Bog, White Cedar Swamp	Perennial streams- rivers common, few small lakes, Lake Huron	Forestry Recreation Residential
212Hb West Green Bay Till Plain	Broad till plain 589-1432 ft.	Pleistocene; Paleozoic limestone- dolomite; Cambrian sandstone	Hapludalfs; Haplorthods; Fragiorthods; Frigid, udic	29 32	39 45	95 150	Hemlock-Sugar Maple Forest, White Pine-Hemlock Forest, White Cedar Swamp	Few small lakes; Common shallow wetlands & stream	Agriculture Forestry

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

212H NORTHERN GREAT LAKES SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
212Hc Green Bay Clayey and Silty Lake Plain	Flat plain 580-898 ft.	Pleistocene; Silurian- Ordovician limestone- dolomite	Hapludalfs	31 32	44 45	120 180	Sugar Maple-Birch Forest, White Cedar Swamp, Bulrush-Cattail Marsh	Common drainage ditches	Agriculture Forestry
212Hd Manitowoc Till Plain	Flat to rolling plain 580 - 1008 ft.	Pleistocene; Silurian- Ordovician limestone- dolomite	Hapludalfs	31 34	44 47	120 180	Sugar Maple-Birch Forest, White Cedar Swamp, Bulrush-Cattail Marsh	Common drainage ditches	Agriculture Forestry
212He Door and Escanaba Peninsulas and Lake Plains	Flat lakebed & old lakeshore features 569 - 842 ft.	Pleistocene; Silurian -Ordovician limestone- dolomite	Boralls, Histosols, Aquepts; Frigid, Udic and Aquic	29 32	42 45	140 160	White Cedar Swamp, Wooded Dune-and-Swale Complex, Sugar Maple-Birch (Beech) Forest	Common streams; Few lakes	Forestry
212Hh Seney Sand Lake Plain	Irregular plains 600 - 969 ft.	Wis. lake sands; Ordovician-Silurian limestone-dolomite- shale	Histosols, Aquods, Aquepts, Psamments, Haplorthods; Frigid, udic	28 30	40 42	100 130	Jack Pine Barrens, White Cedar-Tamarack Swamp, White (Red) Pine-Aspen Forest	Many streams, small and medium rivers	Forestry Preserve Residential
212Hi Grand Mar- Marais Sand End Moraine and Outwash	Open hills; irregular plains 602-1300 ft.	Wis. rocky loamy till, alluvium, lake, out- wash-eolian sands; Paleozoic sandstone- dolomite	Psamments, Boralfs, Haplorthods, Aquods, Histosols; Frigid, udic			100 140	White-Red Pine Forest, Jack Pine Barrens, Sugar Maple-Birch (Beech) Forest	Many small lakes and streams; few small and medium rivers. Lake Superior shoreline	Forestry Recreation Residential
212Hj St. Ignace Lake Plain	Irregular plains 563 - 962 ft.	Wis. lake sand-clay, rocky loamy till; Paleozoic limestone- dolomite-shale-gypsum	Boralfs, Aquepts, Histosols, Orthods, Aquods; Frigid, udic	28 30	40 43	130 140	White Pine-Hemlock Forest, White Cedar-Tamarack Swamps, Beach Ridge and Swale-and-Dune Complexes	Many small and medium lakes, few large lakes, few rivers. Lake Michigan shoreline	Forestry Recreation Residential Agriculture
212Hk Rudyard Clay Lake Plain	Irregular Plain 580 - 799 ft.	Wis. lake clay-sand, Ordovician limestone, dolomite-shale-gypsum	Boralfs, Aqualfs, Haplorthods, Aquods; Frigid, udic	28 29	41 42	120 140	Red Spruce-Balsam Fir- Aspen Forest, Bulrush-Cattail Marsh, Cedar-Tamarack Swamp	Many small and medium rivers and streams. Lake Superior and Lake Huron shoreline.	Agriculture Recreation Residential
212Hl Cheboygon Lake Plain	Flat lake plain; 553 - 1115 ft. carbonate and shales	Thin Wis. sandy lake deposits; Devonian	Haplaquods, Hapla- quepts, Borosaprist; Frigid, udic	27 32	40 44	130 140	White Cedar Swamp, White Red-Pine Forest, Beach Ridge-and-Swale Complex	Large, extensive wetlands, Intermittent and perennial streams	Forestry Limestone mining, Agriculture
212Hm Harrisville Moraines	Rolling; moderately steep moraines and drumlins; karst terrain; 580 - 1163 ft.	Wisconsinan till 0-500 feet thick; Devonian-Miss. shales and limestones	Haplorthods, Glossoboralfs, Udipsamments, Frigid, udic,	29 33	41 45	100 130	Sugar Maple-Birch (Beech) Forest, White Pine-Hemlock Forest, White Cedar Swamp	Several large lakes, Intermittent and perennial streams common	Forestry Agriculture

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

212H NORTHERN GREAT LAKES SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
212Hn Stutsman- ville Sand Ridges	Steep, broad, morainal ridges; 580 - 1182 ft.	Wis. calcareous sandy loam till, outwash sand-gravel, dune sand Devonian carbonates	Haplorthods, Udipsamments; Frigid, udic	29 32	41 43	110 140	Hemlock-Sugar Maple Forest, White Cedar Swamp, Dunes	Intermittent and perennial streams Lake Michigan shore	Forestry Agriculture
212Ho Traverse City Drumlin Fields	Steep terminal moraines, drumlins; 580 - 1132 ft.	Wis. calcareous sandy till, lake-dune sand; Devonian-Miss. shales- limestones	Haplorthods, Udipsamments, Glossoboralfs; Mesic, udic	29 33	42 44	110 150	Hemlock-Sugar Maple Forest, White Cedar Swamp	Lake Michigan bays, narrow in- land lakes, Inter- mittent-perennial streams common	Forested, Orchards, Pastures, Urban dev
212Hp Vanderbilt Moraines	Irregular plain, ground moraine, ice -molded features; 580-1420 ft.	Wis. calcareous sandy loam till, lake sand, alluvium, 100-800 ft.; Paleo. marine rocks	Haplorthods, Glossoboralfs, Udipsamments; Frigid, udic	29 34	41 44	70 120	Hemlock-Sugar Maple Forests, Sugar Maple-Birch (Beech) Forests, Jack Pine Barrens	Common intermit- tent-perennial streams, fast flowing rivers	Forested, Agricultural
212Hq Mio Outwash Plains	Rolling outwash plain; 741 - 1487 ft.	Wis. outwash-ice- contact sand-gravel, peat-muck, lake silt- clay; Carbon.-Jurassic	Udipsamments, Hap- lorthods, Glossobor- alfs, Borosapristis; Frigid, udic	32 35	41 45	80 130	Jack Pine Barrens, Hemlock-Sugar Maple Forests,	Intermittent-per- ennial streams common, few large lakes, Au Sable R.	Forested, Minor Ag
212Hr Tawas Lake Plain	Flat lake plain 580 - 1009 ft.	Wis. lake sand-gravel- silt-clay, clayey till, 50-250 ft.; Car- bon. limestone-shale	Haplaquents, Hapla- quods, Glossudalfs, Hapludalfs; Mesic, udic	31 33	44 46	120 140	Sugar Maple-Birch (Beech) Forests, Hemlock- Sugar Maple Forest, Jack Pine Barrens, Hardwood- Conifer Swamps	Common intermit- tent-perennial streams, large wetlands, few lakes	Forested, Agricultural
212Hs Cadillac End Moraines	Steep terminal moraines; 847 - 1679 ft.	Wis. calc. sandy loamy till, outwash sand- gravel, 500-1000 ft.; Carboniferous marine	Udipsamments, Haplorthods, Eutroborafrs; Frigid, udic	32 36	41 44	90 140	Sugar Maple-Birch (Beech) Forest, White Pine-Oak Forest	Few lakes-wetlands Common intermit- tent-perennial streams	Forested, Agricultural
212Ht Big Rapids Loamy Moraines	Steep terminal moraines; 785 - 1517 ft.	Wis. loamy-sandy loamy till, 500-1000 ft.; Penn. marine, Jurassic "red beds"	Udipsamments, Haplorthods, Haplualfs; Mesic, udic	33 36	42 46	90 140	Sugar Maple-Birch (Beech) Forest, White Pine-Oak Forest	Few lakes or wetlands. Intermittent and perennial streams	Forested, Agricultural
212Hu Newago Outwash and Ice Contact	Flat outwash plain; 626-1091 ft.	Wis. outwash sand- gravel, ice-contact deposits, calcareous sandy loamy till, 300- 600 ft.; Carboniferous	Haplorthods, Glossudalfs; Mesic, udic	32 34	44 46	120 140	White Pine-White Oak Forests, Jack Pine Barrens, Little Bluestem-Indiangrass Sand Prairie	Isolated kettle lakes, Intermittent- perennial, entrenched streams	Forestry Agriculture
212Hv Wellston Outwash and Ice Contact	Flat outwash and lake plain; 580-1116 ft.	Wis. outwash sand- gravel, lake sand, sandy till, alluvium, 300-600 ft.: Paleozoic marine sedimentary	Haplorthods, Glossudalfs; Mesic, udic	31 34	43 45	120 140	White Pine-Red Pine Forests, Sugar Maple- Birch (Beech) Forests	Isolated kettle lakes, Intermittent- perennial streams common, entrenched rivers	Forested, Agricultural

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

212H NORTHERN GREAT LAKES SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
212Hw Manistee Outwash and Lake Sands	Steep, narrow moraines and flat sandy lake plains; 580 - 1051 ft.	Wis. lake-dune sand, sandy loamy till, 400-700 ft.; Devonian- Mississippian marine rocks	Udipsamments, Haplorthods, HapludalFs; Mesic, udic	30 33	43 46	140 150	White Pine-Red Pine Forest, Sugar Maple- Birch (Beech) Forest, White Cedar Swamp	Few large lakes near Lake Mich. Intermittent and perennial streams common	Vineyards, Orchards, Forested, Agricultural Urban dev.
212Hx Hart Outwash and Lake Sands	Moderately steep, broad ridge moraine flat outwash-lake plains; 580 - 1008 ft.	Wis. calc. sandy-loamy -clayey till, outwash sand-gravel, dune sand, 400-700 ft.; Miss. limestone-shale	Haplorthods, HapludalFs; Mesic, udic	31 34	45 47	140 150	White Pine-Red Pine Forests, Sugar Maple- Birch (Beech) Forest, White Cedar Swamp	Few large lakes near Lake Mich. Intermittent and perennial streams common	Vineyards, Orchards, Forested, Agricultural Urban dev.
212Hy Kalkaska Moraines	Morainial ridges and outwash plains; 744-1498 ft.	Wis. sandy till-allu- vium, 250-800 ft.; Miss. marine rocks	Udipsamments, Hap- lorthods, Glossobor- alFs, Borosapristis; Frigid, udic	31 34	41 44	80 130	Sugar Maple-Birch (Beech) Forest, White Pine-Oak Forest	Few large lakes, Intermittent- perennial streams common	Forested, Agricultural

212J SOUTHERN SUPERIOR UPLANDS SECTION

212Ja Lake Superior Clay Plain	Level plains 602-1280 ft.	Wis. lake silt-clay- sand, sandy loamy- clayey till, outwash sand-gravel, peat- muck; Pre-Cambrian sedimentary deposits	EutroboralFs, Gosso- boraquepts, Epiaquods; Frigid, udic	26 31	38 42	110 140	White Pine-Red Pine Forest, Aspen-Birch Forest, White Spruce- Balsam Fir-Aspen Forest	Many Streams; No Lakes; borders Lake Superior	Recreation Forestry Agriculture
212Jb Gogebic/ Penokee Iron Range	Thin till over bedrock 600 - 1806 ft.	Sandy loamy till, ice-contact-outwash- sand and gravel; Keweenawan basalt- conglomerates	Haplorthods, Fragiorthods; Frigid, udic	26 32	37 41	100 130	Sugar Maple-Basswood Forest, Hemlock- Sugar Maple Forest	Few lakes; Common perenial streams	Recreation forestry
212Jc Winegar Moraines	Ice stagnated features 1010 - 1860 ft.	Sandy-loamy-clayey till, outwash sand- gravel, peat-muck; Archean metamorphic- igneous rock	Fragiorthods, Haplorthods; Frigid, udic	28 33	37 41	87 128	Sugar Maple-Basswood Forest, Hemlock- Sugar Maple Forest	Poorly developed drainages; Common Kettle lakes	Forestry Recreation
212Jd St. Croix Moraine	End moraine 720-1436 ft.	Sandy-loamy till, ice contact-outwash- sand-gravel; Cambrian- sandstone-dolomite	GlossoboralFs, Frag- iochrepts, Eutro- chrepts, HapludalFs; Mesic, udic	28 29	41 44	87 128	Sugar Maple-Basswood Forest, Hemlock- Sugar Maple Forest, Aspen-Birch Forest	Common Lakes; Abundant Streams	Forestry Agriculture Pasture

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

212J SOUTHERN SUPERIOR UPLANDS (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
212Je Central/ Northwest Wisconsin Loess Plains	Silt capped, irregular plains 1020 - 1738 ft.	Sandy-loamy till, ice contact-outwash- sand-gravel, peat; Pre-Cambrian gneiss	Glossoboralfs, Haplorthods; Frigid, udic	28 30	39 43	87 128	Sugar Maple-Basswood Forest, Hemlock- Sugar Maple Forest, Aspen-Birch Forest	Few Lakes; Many wetlands	Forestry Agriculture
212Jf Perkinstown End Moraine	Hummocky Hills & Depressions 968-1861 ft.	Sandy-Loamy till, outwash sand-gravel; Pre-Cambrian- intrusives	Glossoboralfs, Dystrochrepts; Frigid, udic	29 30	40 43	87 128	Hemlock-Sugar Maple Forest, Sugar Maple- Basswood Forest, White Pine-Hemlock Forest	Streams, wetlands	Forestry Recreation
212Jg Lincoln Formation Till Plain, Mixed Hardwoods	Irregular Till Plain 875-1477 ft.	Sandy-loamy till, outwash sand-gravel; Cambrian sandstone- shale dolomite	Udipsamments, Hapludalfs; Frigid, udic	29 31	40 44	115 135	Hemlock-Sugar Maple Forest, White Pine-Red Pine Forests	Common small streams	Agriculture
212Jh Neilsville Sandstone Plateau	Irregular Till Surface (shallow) 862-1282 ft.	Loamy till, peat, outwash sand; Cambrian sandstone	Hapludalfs, Quatzipsamments; Frigid, udic	30 31	43 44	115 135	Sugar Maple-Basswood Forest, White Pine-Red Pine Forests	No Lakes; Common Streams	Forestry Agriculture
212Ji Rib Mountain Rolling Ridges	Dissected Rolling to Steep Ridges 1062-1548 ft.	outwash sand-gravel, sandy-loamy till; Pre-Cambrian granite- quartzsite	Glossoboralfs, Hapludalfs; Frigid, udic	30 31	41 43	115 135	Hemlock-Sugar Maple Forest, White Pine- Red Pine Forest, Jack Pine Forests	No Lakes; Deeply Eroded Riverways	Forestry
212Jj Green Bay Lobe Stagnation Moraine	Hummocky to Irregular moraine 800-1808 ft.	Ice contact-outwash- sand-gravel, sandy- loamy-clayey till; Precambrian bedrock	Fragiochrepts, Eutrochrepts, Fragi- orthods, Hapludalfs; Frigid, udic	30 31	40 44	100 128	Hemlock-Sugar Maple Forest	Common small lakes; Headwaters	Forestry Agriculture
212Jk Spread Eagle /Dunbar Barrens	Irregular outwash plain & moraine 640-1593 ft.	Ice contact-outwash- sand-gravel, loamy- till; Precambrian- basalt, granite, other	Quatzipsamments, Frigid, udic	29 32	38 43	100 130	Jack Pine-Oak Forest, Jack Pine-Oak Barrens	Common Kettle Lakes; Large Streams	Forestry
212Jl Brule and Paint Rivers, Drumlinized Ground Moraine	Gently rolling, drumlins 1152-1851 ft.	Ice contact-outwash- sand-gravel, sandy- loamy till; Pre- cambrian basalt,- granite, others	Haplorthods, Eutrochrepts; Frigid, udic	29 33	38 42	87 128	Sugar Maple-Basswood Forest, Hemlock-Sugar Maple Forest	Common large lakes; & large streams	Forestry & Agriculture pasture

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

212J SOUTHERN SUPERIOR UPLANDS SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
212Jm Northern Highlands Pitted Outwash	Rolling to steep depressional sands 1440-1832 ft.	Sandy loamy till, ice contact outwash- sand-gravel; Pre- cambrian mafic-felsic- metavolcanic- quartzsite	Udipsamments, Haplorthods; Frigid, udic	28 33	38 41	111 131	White Pine-Red Pine Forest, Sugar Maple- Basswood Forest	Common Kettle Lakes	Forestry
212Jn Baraga/ Keweenaw Coarse Rocky Till	Broad ground moraine, ridges; 600-1526 ft.	Wis. sandy-loamy- clayey till; Precambrian sandstone and shale	Fragiorthods, Eutroboralfs, Haplorthods; Frigid, udic	26 31	38 41	110 130	Hemlock-Sugar Maple Forest, Sugar Maple-Birch (Beech) Forests, White Cedar-Tamarack Swamps	Few lakes wetlands many small creeks, deep river gorges	Forestry Agriculture
212Jo Ewen Dissected Lake Plain	Flat plain, dissected; 655-1509 ft.	Wis. reworked lake clayey-sandy sediments; Precambrian sandstone	Eutroboralfs, Haplaquepts, Glossoboralfs; Frigid, udic	27 31	38 41	110 120	Sugar Maple-Birch (Beech) Forests, White Pine Forests	No lakes; incised streams and some deep river gorges	Forestry Agriculture
212Jr Michigamme Highlands	Hills, low to high, rocky ridges, flat outwash plains 600-1890 ft.	Wis. loamy till; Precambrian sandstone	Fragiorthods, Haplorthods; Frigid, udic	27 33	37 41	75 150	Hemlock-Sugar Maple For- est, Sugar Maple-Birch (Beech) Forest, Black Spruce (Tamarack) Swamp	Bedrock lakes common throughout numerous streams and rivers	Forestry Recreation
212Js Lincoln Formation Till Plain, Hemlock Hardwoods	Dissected irregular till plain; 1181-1636 ft.	Wis. sandy loamy till- outwash sand-gravel, peat-muck; Cambrian- sandstone-shale- dolomite, Pre- cambrian gneiss	Glossoboralfs, Ochraqualfs, Glossaqualf; Frigid, udic	30 31	41 43	100 130	Sugar Maple-Hemlock Forest	Streams with a dendritic pattern	Agriculture

212K WESTERN SUPERIOR UPLANDS SECTION

212Ka Bayfield Sand Plains	Flat to steep depressional sands 775 - 1437 ft.	Wis. ice-contact-out- wash sand; Cambrian quartzose glauconitic sandstone-silt	Haplorthods, Fluvaquents; Frigid, udic	27 28	39 43	120 140	Jack Pine Forests, White Pine-Red Pine Forests, Jack Pine Barrens	Few kettle lakes	Forestry Wildlife
212Kb Mille Lacs Uplands	Irregular ground moraine, ice-molded landscape; 734 - 1486 ft.	Wis. sandy loamy till; Cambrian-Cretaceous shale-sandstone, Archean granite	Udipsamments, Glos- soboralfs, Hemists, Dystrochrepts; Frigid, udic	25 29	39 43	97 135	White Pine-Oak Forest, White Pine-Red Pine Forest, Cedar-Tamarack Swamp	Few lakes, many wetlands	Forestry Wildlife

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

212L NORTHERN SUPERIOR UPLANDS SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
212La Border Lakes	Plains with low mountains; 1100-2201 ft.	Wis. non-calcareous loamy-sandy loamy till Proterozoic granite, gneiss, basalt, rhyolite	Dystrochrepts; Frigid, xeric, udic	24 37	35 38	90 123	Jack Pine Forest, White-Pine-Red Pine Forests, White Spruce-Balsam Fir-Aspen Forest	Lakes dominate, perennial streams	Forestry Wilderness Recreation
212Lb North Shore Highlands	Low mountains; 600 - 2015 ft.	Wis. sandy-clayey stony till; Precambrian basalt, igneous, anorthosite, sedimentary	Dystrochrepts, Udothents, Eutroboralfs; Udipsamments; Frigid, udic	25 37	35 39	106 121	Sugar Maple-Birch, Aspen-Birch, White Pine-Red Pine, White Spruce-Balsam Fir Forests	Temperance River, perennial-intermittent streams, gorges	Recreation Forestry
212Lc Laurentian Highlands	Plains with high hills 1300-1850 ft.	Wis. loamy-silty non-calcareous till; Precambrian granite-gneiss-sed.-anorthosite	Dystrochrepts; Frigid, udic	26 27	37 40	106 121	White Pine-Red Pine Forest, Aspen-Birch Forest, Jack Pine Forest	Laurentian Divide, Perennial streams	Forestry Mining Recreation
212Ld Toimi Uplands	Plains with high hills 1350-1900 ft elev	Late Wisconsin loamy-sandy drift: Precambrian	Dystrochrepts, Fragiochrepts; Frigid, udic	28	36	106 121	Aspen-Birch Forest, White Pine-Red Pine Forests, Tamarack-Black Spruce Swamps-Bogs	St. Louis River, Cloquet & Whiteface Rivers, perennial streams	Forestry Recreation

212M NORTHERN MINNESOTA & ONTARIO SECTION

212Ma Littlefork/Vermillion Uplands	Level to gently rolling lake plain, glaciated; 1100-1530 ft.	Wis. clayey lake sediments, loamy till, organic deposits; Precambrian gneiss	Aqualfs, Aquents, Boralfs, Hemists; Frigid, acqic, udic	23 25	37 38	98 111	White-Red Pine Forests, Aspen-Birch Forest, Black Spruce Swamp-Bog	Undeveloped drainage networks; Several rivers very few lakes	Forestry Recreation
212Mb Agassiz Lowlands	Flat, lake plain 1040 - 1474 ft.	Wis. organic sediment, calcareous silty till; Precambrian gneiss	Hemists, Aqualfs, Aquents; Frigid, acqic, udic	20 25	36 39	98 111	Black Spruce Bog, Leatherleaf Bog, Sedge Fen	Extensive ditching; some large lakes	Forestry Recreation

212N NORTHERN MINNESOTA DRIFT & LAKE PLAINS SECTION

212Na Chippewa Plains	Gently rolling plains, ground moraine; 1199-1596 ft.	Wis. till, outwash	Psamments, Aquents, Boralfs; Frigid, udic	22 25	38 40	115	White Pine-Red Pine Forests, Aspen-Birch Forest, Black Spruce Swamp-Bog	Few large lakes & rivers, common	Forestry Recreation
212Nb St. Louis Moraines	Hills, ground-end moraine; 1181-1629 ft.	Wis. till	Boralfs, Aqualfs, Hemists, Psamments; Frigid, udic	24 26	38 41	121	White Pine-Red Pine Forest, Aspen-Birch Forest, Sugar Maple-Birch Forest	Numerous Kettle lakes and few and streams	Recreation Forestry

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

212N NORTHERN MINNESOTA DRIFT & LAKE PLAINS SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
212Nc Pine Moraine and Outwash Plains	Hills, rolling plains, channels, end moraine; 1100-1940 ft.	Wis. till, outwash	Psammets, Aquents, Boralfs; Frigid, udic	22 26	38 42	121	Jack Pine Barrens, White-Pine-Red Pine Forests, Aspen-Birch Forest	Numerous Kettle lakes and few large rivers	Recreation Forestry
212Nd Tamarack Lowlands	Rolling to flat lake plains, beach ridges, ground moraine; 1180-1718 ft.	Wis. till, lake sediments	Ochrepts, Hemists, Aquents, Boralfs; Frigid, udic	25 27	37 41	104	Black Spruce Bog, White Cedar-Tamarack Swamps, Aspen-Birch Forest	No lakes, two rivers, and several streams	Agriculture Forestry

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2120 LAKE MICHIGAN SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
2120a Lake Michi- gan and Islands	Lake plain-glacial ice scour and till; 148-581 ft.	Lake clay and silt, Lake sand and gravel, Ground moraine under lake, Ground moraine (islands)	Frigid, Udic and Aquic (Islands)	27	34	28		Reserved	Navigation Fishery Recreation
2120b Green Bay	Lake plain-glacial ice scour; 148-581 ft.	Lake clay and silt, Moraine under water	Reserved		34	28		Reserved	Navigation Fishery Recreation
2120c Grand Traverse Bay	Lake plain-glacial ice scour; 148-581 ft.	Ground moraine under bay	Reserved		34	28		Reserved	Navigation Fishery Recreation

212P LAKE HURON SECTION

212Pa Lake Huron and Islands	Lake plain-glacial ice scour and till; 148-581 ft.	Lake clay and silt; Lake sand and gravel	Frigid, Udic and Aquic (Islands)		34	28		Reserved	Navigation Fishery Recreation
212Pb Saginaw Bay	Lake plain-glacial ice scour; 148-581	Lake sand gravel; Lake clay and silt	Reserved		34	28		Reserved	Navigation Fishery Recreation
212Pc Manitoulin Island	Island till over bedrock; 180-984	Discontinuous sandy loamy till	Frigid, Udic and Aquic		36	32	Reserved	Reserved	Forestry Woodland Recreation

M212A WHITE MOUNTAIN SECTION

M212Aa Interna- tional Boundary Plateau	Open high hills 1200-1800 ft.	Wis. loamy-sandy loam till; sand-gravel de- posits; Devonian pe- lite-sandstone	Haplorthods, Epiaquepts, Borofolists; Frigid,udic,aquic	38	38	108	Red Spruce-Balsam Fir, Su- gar Maple-Birch-Beech For- ests, N. White Cedar Swamp, Black Spruce Open Bog	Few,large rivers, and common streams,few ponds and lake	Forestry Agriculture
M212Ab St. John Upland	Open high hills 1200-2300 ft.	Wis. sandy loam till, sand-gravel deposits, bedrock outcrops; Devonian pelite- sandstone	Haplorthods, Epiaquepts, Borofolists; Frigid,udic,aquic	38	38	113	Red Spruce-Balsam Fir, Sugar Maple-Birch-Beech Foests, N. White Cedar Swamp, Alpine Communities, Black Spruce Barren	Numerous ponds and lakes;few, large wetlands;few,large rivers,streams common	Forestry Agriculture Rural
M212Ac Maine Central Mountains	Low mountains 1000-3500 ft.	Wis. sandy till, out- wash sand-gravel, bed rock; Paleozoic gran- ite-pelite-sandstone	Haplorthods, Epiaquepts, Borofolists; Frigid,udic,aquic	40	40	123	Red Spruce-Balsam Fir, Sugar Maple-Birch-Beech Forests, Alpine Communi- ties, Pine-Heath Woodlands	Numerous ponds, lakes,streams,few rivers, wetlands	Forestry Rural Recreation

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

M212A WHITE MOUNTAIN SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
M212Ad White Mountains	High mountains 1000-6000 ft.	Wis. sandy till, out- wash sand-gravel, bed- rock; Paleozoic gran- ite-tonalite-pelite	Haplorthods, Boro- folists, Cryorthods, Epiaquents; Frigid- Cryic, udic-aquic	47	41	116	Red Spruce-Balsam Fir, Sugar Maple-Birch-Beech Forests, Alpine Communities	Common rivers and streams; few lakes and ponds; few, wetlands	Forestry Recreation Development
M212Ae Mahoosuc Rangely Lakes	High mountains 1200-1400 ft.	Wis. sandy loam till, outwash sand-gravel, bedrock: Devonian granite-grandiorite	Haplorthods, Cry- orthods, Borofolist; Frigid-Cryic, udic-aquic	38	40	115	Red Spruce-Balsam Fir, Sugar Maple-Birch-Beech Forests, Alpine Communities	Common lakes and ponds; common river and streams; few large wetlands	Forestry Recreation
M212Af Connecticut Lakes	Low mountains 1000-4000	Wis. sandy loam till; sand-gravel deposits, bedrock; Dev. sand- stone; Precam. gneiss	Haplorthods, Boro- hemists, Epiaquents; Frigid-Cryic, udic, aquic	41	39	107	Red Spruce-Balsam Fir, Sugar Maple-Birch-Beech Forests, Alpine Commu- nities, Calcareous Fens	Common lakes and ponds; few rivers and streams, few wetlands	Forestry Agriculture Recreation
M212Ag Western Maine Foothills	Low mountains 600-3000 ft.	Wis. sandy-loamy till, sand-gravel deposits; Paleozoic pelite-sand- stone, tonalite	Haplorthods; Frigid, udic	44	42	125	Sugar Maple-Birch-Beech Forests, Red Spruce- Balsam Fir Forests	Few ponds, lakes, & wetlands, common streams and rivers	Forestry Rural Recreation

M212B VERMONT-NEW HAMPSHIRE UPLAND SECTION

M212Ba - Vermont Piedmont	Open low mountains 500-2500 ft. (3348 ft.)	L. Wis. sandy loamy till; Paleozoic meta- sedimentary-limestone- intrusives, Proterozo- ic gneiss-amphibolite	Haplorthod, Fragior- thod, Humaquept, Haplaquept, Dystro- chrept; Frigid, udic	39	42	114	Sugar Maple-Birch-Beech, N. Red Oak-Hardwood Mesic Forests, Red Spruce-Balsam Fir Forest, N. White Cedar Limestone Woodlands	Streams, small- medium rivers- small lakes com- mon, few large wetlands	Agriculture Forestry Quarrying Recreation
M212Bb Northern Connecticut River Valley	Open high hills 400-1200 ft.	Wis. lake silt-clay, kame gravel-sand-silt; Paleo.metasedimentary, crystalline limestone, acid intrusives	Udipsamment, Dystro- chrept, Haplorthod, Fragiorthod; Mesic, Frigid, udic	40	45	143	Sugar Maple-Birch-Beech Forest, Oak-Pine Dry Forest, Silver Maple Floodplain Forest	Connecticut River; large tributary mouths, impound- ments, reservoirs	Agriculture Urban
M212Bc Sunapee Uplands	Low Mountains 50-1600 ft.	Wis. sandy loam till, outwash sand-gravel, bedrock; Devonian metasedimentary rocks	Dystrochrepts, Haplorthods, Borohemists; Frigid, Mesic, udic	42	44	121	Sugar Maple-Birch-Beech Forest, N. Red Oak- Hardwood Mesic Forest, Red- Spruce-Balsam Fir Forest	Common ponds, lakes, and streams	Forestry Agriculture Recreation
M212Bd Hillsboro Inland Hills and Plains	Low Mountains 600-1800 ft.	Wis. sandy loam till, outwash sand-gravel; Paleozoic biotite gne- iss, granite, volcanics	Haplorthod, Dystrochrepts; Frigid, udic	45	45	150	N. Red Oak-Hardwood Mesic Forest, Sugar Maple-Birch- Beech Forest, Oak-Pitch Pine Woodland	Numerous ponds, lakes and streams	Forestry Agriculture Recreation

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

M212C GREEN, TACONIC, BERKSHIRE MOUNTAIN SECTION

M212Ca - Northern Green Mountain	High mountains, ice-scoured; 500-4000 ft.	L. Wis. sandy loamy till, Paleo metased. schist-phyllite, meta-volcanics, ultramafics	Haplorthods, Huma-quepts, Cryorthods; Frigid, Cryic; udic	49	41	121	Red Spruce-Balsam Fir Forest, Sugar Maple-Birch-Beech Forest, Alpine Communities	Common rivers-str-eams, var.gradient few ponds-lakes-large wetlands	Forestry Recreation
M212Cb - Taconic Mountains	Low mountains, ice-scoured; 500-3500 ft.	L. Wis. sandy loamy till, ice-contact sand-gravel; Paleo. meta-sedimentary-limestone	Dystrochrept, Eutrochrept, Haplorthod, Udipsamment; Mesic-Frigid, udic	42	45	135	Red Spruce-Balsam Fir Forest, Sugar Maple-Birch-Beech Forest, Oak-Hickory-Ash Dry Forests	Low-moderate grade rivers-streams, few ponds-lakes-large wetlands	Forestry Recreation Quarrying
M212Cc - Berkshire /Vermont Upland	Open low mountains, ice-scoured; 500-2500 ft.	L. Wis. sandy loamy till, Paleo. metasedimentary-limestone, pC amphibolite-gneiss	Haplorthods;Frigid, udic	48	45	143	Sugar Maple-Birch-Beech, Red Spruce-Balsam Fir Forests, Oak-Hickory-Ash, Oak-Pine Dry Forests	Moderate-steep rivers-streams, few impoundments-large wetlands	Forestry Agriculture Recreation
M212Cd - Southern Green Mountain	Low mountains, ice-scoured; 1000-3500 ft.	L. Wis. sandy loamy till, Paleo.-pCambrian quartzite-schist-gneiss, granite	Haplorthods, Haplaquods, Cryorthods; Frigid-Cryic; udic	48	45	143	Red Spruce-Balsam Fir, Sugar Maple-Birch-Beech Forests, Oak-Hickory-Ash Dry Forest	Deerfield River-impoundments, wetlands common, high elev. ponds, strms	Forestry Recreation

M212D ADIRONDACK MOUNTAIN SECTION

M212Da Adirondack Hills and Flats	Plains with hills, glaciated peneplain 900-2518 ft.	Wis. coarse loamy-sandy till, outwash-lake deposits; Proterozoic gneisses-schist	Haplorthod, Epiaquod Haplaquods, Hapla-quepts, Borosaprist; Frigid, udic	39	42	125	Sugar Maple-Birch-Beech Forest, Red Spruce-Balsam Fir Forest, Red Spruce-Balsam Fir Swamp	Upper branches of rivers & streams; wetlands; several reservoirs	Forestry
M212Db Western Adirondack Foot-hills	Plains with hills, glaciated peneplain 800-1800 ft.	Wis. variable-sandy till, Precambrian gneisses-schist, calc-silicates-marble	Haplorthod, Eutrochrepts, Epiaquod; Frigid, mesic, udic	44	42	123	Oak-Hickory-Ash Dry Forest Forest, White Pine-Red Pine Forest	Many streams; Sugar Maple-Birch-Beech lakes	Forestry lakes
M212Dc Adirondack Highlands and Lakes	Open hills and high hills, glaciated peneplain, 1500-2500 ft.	Wis. var.-sandy till, outwash-delta deposits rock, alluvium; Precam gneiss, anorthosite	Haplorthod, Epiaquod Eutrochrept, Boro-saprist, Dystrochrept; Frigid, udic	45	40	108	Sugar Maple-Birch-Beech Forest, Red Spruce-Balsam Fir Forest, Red Spruce and Cedar Bogs	Deranged drainage; many chain lakes, streams, wetlands; reservoirs	Forestry
M212Dd Cental Adirondack Mountains	Open low mtns; glaciated; blockfaulted; 1600-3900 ft.	Wis. sandy-var. till, inwash-alluvial in-wash, rock, Precambrian gneisses, schist	Haplorthod, Epiaquod Cryorthod, Haplaquod Humicryods; Frigid, Cryic, udic	39	40	98	Red Spruce-Balsam Fir Forest, Sugar Maple-Birch-Beech Forest, Alpine Communities	Streams; lakes; wetlands; reser-voirs	Forestry
M212De Eastern Adirondack Low Mountains	Open low mtns.; glaciated, blockfaulted; 400-2600 ft.	Wis. var.-textured till, rock; Precam-brian gneisses-schist	Haplorthod, Dystrochrept, Epiaquod; Frigid, udic	39	43	140	Sugar Maple-Birch-Beech Forest, Red Spruce-Balsam Fir Forest, N. Talus Slope Woodland	Lake George, modified streams; lakes; wetlands; mod. dendritic	Forestry

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

M212D ADIRONDACK MOUNTAIN SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)	Potential Vegetation	Surface water characteristics	Human use
M212Df Adirondack Peaks	Open low and high mountains, glaciated; 1000-5344 ft.	Var.-textured Wis.till glaciofluvial valley deposits; Precambrian Anorthosite.	Haplorthod, Epiquod Dystrochrept, Cryor-thod, Borosaprist; Frigid-Cryic, udic	38 40 98	Red Spruce-Balsam Fir Forest, Sugar Maple-Birch-Beech Forest, Alpine Communities	Headwater streams; few small lakes; wetlands	Forestry

M212E CATSKILL MOUNTAINS SECTION

M212Ea Catskill Mountains	Open low and high mountains; 1000-4200 ft.	L.Wis. loamy till, rock; Devonian continental shale-sandstone-conglomerate	Dystrochrept, Fragi-ochrepts; Frigid, udic	60 41 124	Red Spruce-Balsam Fir Forest, Sugar Maple-Birch-Forest	Headwater streams dendritic pattern	Forestry
M212Eb Catskill Highlands	Open low mountains, ground moraine 100-3300 ft.	L.Wis. loamy till, lake-ice-contact-outwash deposits; Devonian continental sed.	Dystrochrepts, Fragi-ochrepts; Frigid-Mesic, udic	42 45 125	Sugar Maple-Birch-Beech Forest, Oak-Hickory-Ash Dry Forest, Cedar Glades	Upper branch streams, some reservoirs, dendritic	Forestry Agriculture

M212F TUG HILL PLATEAU SECTION

M212Fa Tug Hill Plateau	Tilted plateau, ground-stagnation-end moraine; 1000-2000 ft.	Late Wis. sandy loamy till; Ordovician sandstone	Frugiorthods, Fragi-ochrept; Frigid, udic	60 42 140	Sugar Maple-Birch-Beech Forest, Paper Birch-Red Spruce Transition Forest, Red Spruce-Balsam Fir Frst.	Headwater streams wetlands; deranged-radial drainage	Forestry
M212Fb Tug Hill Transition	Irregular plains, ground moraine, glacial-fluvial; 600-1000 ft.	L.Wis. loamy till, ice-contact-outwash sand-gravel-silt; sandstone shaley sandstone-shale	Haplorthod, Fragi-orthod, Dystrochrepts; Frigid, udic	50 44 147	Sugar Maple-Birch-Beech, Paper Birch-Red Spruce Transition Forest, Red Cedar-White-Ash Woodland	Mainly streams; wetlands; deranged drainage	Forestry Agriculture

221A SOUTHERN NEW ENGLAND COASTAL HILLS AND PLAIN SECTION

221Aa Boston Basin	Glaciated irregular plain; 0-400 ft.	Wis. marine silt-clay, sandy till, ice contact sand-gravel; Paleozoic sedimentary	Dystrochrepts, Epiquod Udothents; Mesic, frigid, udic	45 50 184	Hemlock-white pine and N. Red Oak-white pine Forest, Maritime dune communities	Few small lakes - reservoirs; Small streams; Coastal inlets and bays.	Urban, Residential Forest
221Ab Cape Cod Coastal Lowland and Islands	Glaciated irregular plain, terminal moraine; 0-400 ft.	Wis. outwash-kame moraine; Holocene dunes; Quaternary sedimentary	Udipsamments, Udothents, Sulfahemists; Mesic, udic	46 49 168	Hemlock-white pine and oak-pine xeric Forest; maritime dune communities	Small lakes-reservoirs, streams; Coastal inlets-bays	Residential Forest

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

221A SOUTHERN NEW ENGLAND COASTAL HILLS AND PLAIN SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
221Ac Narragansett /Bristol Lowland and Islands	Glaciated irregular plain; 0-600 ft.	Wis. sandy till, ice- contact sand-gravel; Precambrian igneous granite, Paleozoic sedimentary	Dystrochrepts, Epiaquepts, Medisaprists; Mesic, udic	46	50	179	Hemlock-white pine and oak-heath dry Forest; maritime dune communities	Small streams - lakes; coastal bays-inlets	Forestry Development Agriculture
221Ad Southern New England Coastal Lowland	Glaciated irregular plain and hills; 0-600 ft.	Wis. sandy-loamy till ice contact-outwash sand-gravel; Precambrian igneous, gneiss-granite-schist	Dystrochrepts, Udorthents, Haplaquepts; Mesic, udic	47	50	172	Hemlock-white pine-oak and red oak-hardwood Forest; maritime dune communities	Few rivers, many small streams; coastal inlets	Forestry Agriculture Development
221Ae Hudson High- lands	Open high hills steep sided valleys; 1000-1500 ft.	Pleistocene coarse stoney loamy till, Precambrian gneiss- granite-schist	Dystrochrepts, Epiaquepts, Udorthents; Mesic, frigid, udic	46	50	165	Hemlock-white pine, red oak -white pine, and sugar maple-Chinquapin Oak Forests	Many glacial lakes, few large streams, reservoirs	Forests, agriculture, residential mining
221Af Lower Connecticut River Valley	Broad glacial valley - terraces; 100-1000 ft.	Quaternary kame delta sand-gravel, lake sed- iment, alluvium; Mes- ozoic sedimentary-vol- canic (arkose-basalt)	Dystrochrepts, Epiaquepts, Udorthents; Mesic, udic	46	49	160	Hemlock-white pine-oak, Sugar Maple-Birch-Beech Forest, White Pine-Red Pine Forest	Few lakes, many streams - small rivers	Agriculture Residential Forest
221Ag Southeast New England Coastal Hills and Plains	Glaciated irregular plain - open hills; 100-1200 ft.	Wis. sandy till; sand- gravel-silt in valleys Paleozoic intrusives, granite-schist-gneiss	Dystrochrepts, Epiaquepts, Udorthents; Mesic, udic	50	48	145	Hemlock-white pine-oak - Sugar Maple- Birch-Beech Forest	Many small lakes, few large	Forest Agriculture Residential
221Ah Worcester/ Monadnock Plateau	Glaciated plain - open high hills; 100-1400 ft.	Wis. sandy till; sand, gravel-silt in valleys Paleozoic intrusives, granite-schist-gneiss	Dystrochrepts, Haplaquepts, Udorthents; Mesic, udic	43	45	114	Hemlock-white pine-oak, Sugar Maple-Birch-Beech, Red Spruce Transition Forests	Many small lakes, Quabbin Reservoir, Many narrow valley streams	Forest Residential Agriculture
221Ai Gulf of Maine Coastal Plain	Glaciated plain - hills; 100-1400 ft.	Wis. sandy till; sand- gravel-silt in valleys Paleozoic intrusives, schist-granite-gneiss	Dystrochrepts, Udorthents, Udipsamments; Mesic, udic	44	48	156	Hemlock-white pine-oak, Sugar Maple-Birch-Beech, Red Oak-Hardwood Mesic Forests	Many small lakes, reservoirs, - streams	Forest Agriculture Residential
221Ak Gulf of Maine Coastal Lowland	Glaciated irregular plain, coastal dunes; 0-400 ft.	Quaternary marine silt -clay-peat; Paleozoic intrusive schist-gran- ite-gneiss, sedimentary	Dystrochrepts, Udorthents, Sulfihemists; Mesic, frigid, udic	44	47	147	Hemlock-white pine, N. oak -white pine Forest; Atlantic white cedar swamp Maritime dune communities	Coastal inlets - bays; many small streams	Forest Residential Agriculture
221Al Sebago/ Ossipee Hills and Plain	Glaciated high hills - open low mntns; 100-2200 ft.	Wis. sandy till; out- wash sand-gravel; Pal- eozoic intrusive gran- ite-gneiss-schist	Haplorthods, Dystrochrepts, Haplaquepts; Frigid, udic	43	45	128	Hemlock-white pine-oak - Sugar Maple-Birch-Beech Forest, Red Maple-Red Spruce Swamp	Large lake - wet- land complexes; many streams	Forest Residential Agriculture

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

221A SOUTHERN NEW ENGLAND COASTAL HILLS AND PLAIN SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
221Am Reading Prong	Broad uplands separated by nar- row valleys 350-1500 ft.	Pleistocene silty sand -clay residuum, sand- silt-stone colluvium; Precambrian granite- gneiss	Dystrochrepts, Fragiudults, Hapudualfs; Mesic, udic	45 50	50 54	155 170	Sugar Maple-Chinquapin Oak Forest, Oak-Heath Dry For- est, Sugar Maple-Birch- Beech, Oak-Pine Dry Forest	Swift flowing stream w/ rock bottoms in valleys lakes	Agriculture Urban

221B HUDSON VALLEY SECTION

221Ba Hudson Limestone Valley	Rolling hills, gla- ciated, ice-molded, 400-1000 ft.	Late Wis. loamy-sandy loamy till, ice-con- tact-delta deposits, lake silt-clay: Paleo- zoic limestone-shale	Eutrochrept, Haplu- dalf, Dystrochrept Fragiochrept, Medisaprist; Mesic, udic	46	48	183	White Pine-Red Pine Forest Sugar Maple-Chinquapin Oak Forest, Sycamore-Box Elder Floodplain Forest	Hudson R; many streams, deranged drainage, wetlands	Agriculture Forestry
221Bb Taconic Foothills	Foothills, glacia- ted, ice-molded, 400-1000 ft.	Late Wis. loamy till, lake-ice-contact-out- wash: Ordovician shale -siltstone-graywacke	Dystrochrept, Fragiochrept, Eutrochrept; Medic, udic	36	45	131	Northern Hardwoods, Sugar Maple-Chinquapin Oak Forest, Talus Slope Woodland	Many headwater streams, some small lakes	Forestry Agriculture

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

221B HUDSON VALLEY SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
221Bc Hudson Glacial Lake Plains	Level to rolling glacial lake plain, dunes; 100-900 ft.	Quaternary lake silt- clay-sand-gravel, loamy till, alluvium; Ordovician shale-silts	Fragiochrepts, Udi- psamment, Ochraqualf Hapludalf; Mesic, udic	41	48	159	Sugar Maple-Chinquapin Oak Forest, White Pine-Red Pine Forest	Hudson/Mohawk R confluence; streams, some lakes, wetlands	Agriculture Forestry Urban
221Bd Kittatinny- Shawangunk Ridges	Steep Ridges 1000-1800 ft.	Wis. sandy loam till; Resistant sandstone & conglomerate	Dystrochrepts, Fragiudults, Hapludalfs; Mesic, udic	44 46	48 51	130 150	Oak-Heath Dry Forest, Su- gar Maple-Chinquapin Oak Forest, Ridgetop Pitch Pine Pine Barrens	Steep headwater streams	Forestry

221D NORTHERN APPALACHIAN PIEDMONT SECTION

221Da Gettysburg Piedmont Lowland	Rolling hilly low- lands, 100-400 ft.	Silt-sand-clay residu- um; Triassic-Jurassic sandstone-silt-clay, conglomerates	Dystrochrepts, Frag- iudults, Hapludalfs, Hapludults; Mesic, udic	45 46	51 54	165 180	Red Oak-Hardwood Mesic Forest, Oak-Heath Dry For- est, Red Maple-Black Ash Seepage Swamp	Meandering streams w/ well-defined floodplains	Agriculture Suburban
221Db Piedmont Upland	Broad, gently rolling hills and valleys 100 to 1220 ft.	Silty sand-silty clay residuum; Saprolite; Metamorphic-ultramafic schist-gneiss-granite	Udults, Udalfs, Ochrepts, Fluvaquents; Mesic, udic	40 42	50 52	160 180	Oak-Heath Dry Forest, Oak-Pine Dry Forest esp. along Susquehanna, Serpen- tine Barrens	Mature dendritic patterns. Many farm impound- ments	Farming Forestry Industrial & Urban
221Dc Newark Piedmont	Gently rolling broad lowlands belt of high ridges 0-879 ft.	Wis. loamy till, glac- iofluvial deposits; Tr- iassic-Jurassic silt- shale-conglomerates	Dystrochrepts, Frag- iudults, Hapludalfs, Ochraqualfs; Mesic, udic	44 45	51 53	170 185	Oak-Heath Dry Forest, Su- gar Maple-Chinquapin Oak Forest, Red Maple-Black Ash Swamp, Freshwater Tidal Marsh	Large river drain- ing extensive wet lands, marshes, swamps and lakes	Urban Industrial

221E SOUTHERN UNGLACIATED ALLEGHENY PLATEAU SECTION

221Ea Pittsburgh Low Plateau	Dissected Plateau Northern Flushing Escarpment 650-1400 ft.	Fine-textured collu- vium; Paleozoic shale- limestone-sandstone- coal	Hapludalf, Dystro- chrepts, Hapludults, Fragiudalfs; Mesic, udic	36 44	49 52	138 170	Oak-Heath Dry Forest, Sugar Maple-Chinquapin Oak Forest, Hemlock-White Pine Forest	Perennial, narrow valleyed streams, dendritic	Forestry Agriculture Strip mines Development
221Eb Teays Plateau	Broad bottomlands, rivers, rolling hills; 800-1800 ft. 550-850 west	Colluvium, alluvium, Penn. shale-siltstone- sandstone-coal-lime- stone	Udifluvents, Fluva- quents, Hapludults; Mesic, udic	40 45	54	170 180	Oak heath Dry Forest, Red Maple-Ash Floodplain Swamp, Sugar Maple-Chin- quapin Oak Forest	Dendritic	Agriculture Industrial Development Mining
221Ec Ohio Valley Lowland	Highly dissected plateau, hill and valleys 540-1415 ft.	Clayey colluvium; Mesozoic sedimentary shale-sandstone-lime- stone-coal	Hapludalfs, Hapludults; Mesic, udic	39 41	50 55	156 182	Sugar Maple-Chinquapin Oak Forest, Oak-Heath Dry Forest, Hemlock-Hardwood Ravine Forest	Perennial streams, high stream densi- ty, dendritic drainage	Forestry Dairying Farming Mining

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

221E SOUTHERN UNGLACIATED ALLEGHENY PLATEAU SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
221Ed East Hocking Plateau	Dissected Plateau 515-1340 ft	Colluvium, landslides; Penn. shale-siltstone- sandstone-coal,	Hapludalfs, Hapludults; Mesic, udic	37 42	50 56	156 182	Sugar Maple-Chinquapin Oak Forest, Oak-Heath Dry For- est, Red Maple-Black Ash Seepage Swamp	Incised perennial streams	Forestry Agriculture Mining
221Ee Unglaciaded Muskingum Plateau	Dissected plateau, broad major valleys underfit streams 660-1400 ft.	Wis.-Holocene loamy colluvium, landslide deposits; Penn. sand- stone-siltstone-coal	Hapludalfs, Dystrocrepts; Mesic, udic (ultic & typic)	36 40	49 52	145 166	Oak-Heath Dry Forest, Sugar Maple-Chinquapin Oak Forest	Underfit Major Streams	Agriculture Forestry Recreation Mining
221Ef West Hocking Plateau	Dissected plateau 500-1225 ft	Colluvium; Mesozoic sandstone- siltstone-shale-lime- stone-coal-clay	Hapludults, Dystrochrepts, Hapludalfs; Mesic, udic	36 42	51 56	148 177	Sugar Maple-Chinquapin Oak Forest, Hemlock-Hardwood Ravine Forest, Red Maple- Ash Floodplain Swamp	High perennial streams, major streams underfit	Forestry Agriculture Coal Mining
221Eg Lower Scioto River Plateau	High relief plateau 490-1340 ft.	Sandstone chip collu- vium, Devonian-Miss. shale-sandstone locally thick	Hapludults, Dystrochrepts; Mesic, udic	39 44	52 56	158 195	Sugar Maple-Chinquapin Oak Forest, Oak-heath Dry Forest, Hemlock Hardwood Ravine Forest	High stream density	Forestry Agriculture incl. tobacco

221F WESTERN UNGLACIATED ALLEGHENY PLATEAU SECTION

221Fa Allegheny Plateau	Drift-covered bedrock hills and valleys; 600-1505 ft	Late Wis. clay-loam till;	Epiaqualfs, Fragiudalfs; Mesic, aquic-udic	37 43	48 51	145 168	Sugar Maple-Chinquapin Oak Forest, Oak-Heath Dry For- est, Ridgetop Pitch Pine Barrens, Calcareous Fens	High stream density, underfit streams	Forestry Agriculture
221Fb Grand River/ Pymatuning Lowlands	Low-relief lake plain, ground-end moraine; 650-1200 ft.	Wis. lake silt-clay, clay till; Paleozoic shale-sandstone	Epiaqualfs, Fragiaqualfs, Hapludalfs; Mesic, aquic,	37 42	48 50	141 164	Sugar Maple-Chinquapin Oak Forest, Hemlock Swamp forests	Underfit streams;	Forestry Agriculture
221Fc Akron Kames	Interlobate area of outwash, kames & moraines 900-1200 ft	Pleistocene till, out- wash; Miss.-Penn. sandstone-shale	Hapludalf; Fragi- iudalfs, Medisaprist; Mesic, udic-aquic	36 41	49 50	150 169	Oak-Heath Dry Forest, Sugar Maple-Chinquapin Oak Forest, Sedge Meadow	Major rivers, natural lakes and bogs	Forestry Agriculture

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

221H NORTHERN CUMBERLAND PLATEAU SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
221Ha Rugged Eastern Hills	Low and high mountains; 500-1000	Sandstone and shale- clast loamy colluvium	Hapludults; Dystrochrepts; Mesic, Udic	46	55	175	Chestnut Oak FA, Chestnut Oak-Oak (White-S. Red- Black)-Hickory (Mockernut- Pignut) FA	Small and Medium intermittent and perennial streams common	Forestry Mining Recreation
221Hc Southwestern Escarpment	High hills; 500-1000 ft.	Holocene, Wisconsin sandstone and shale- clast loamy colluvium	Hapludults, Dystrochrepts; Mesic, udic	46	55	175	Chestnut Oak FA, Chestnut Oak - N. Red Oak - Hickory (Mockernut, Pignut, Shag- bark FA	Perennial streams common, medium rivers few	Forestry
221Hd Sequatchie Valley	Open low mountains; 1000-3000 ft.	Cenozoic cherty clay solution residuum, sandy clay decompos- ition residuum	Hapludults, Dystrochrepts; Mesic, udic	38 57	55 61	170 210	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA	Sequatchie River and tributaries	Agriculture
221He Low Hills Belt	High hills; 300-1000 ft.	Holocene, Wisconsin sandstone and shale- clast loamy colluvium	Hapludults; Mesic, udic	46	55	175	White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA, Chestnut Oak FA	Perennial streams few to common, many small rivers	Agriculture

212I LAKE SUPERIOR SECTION

212Ia Lake Super- ior and Islands	Lake plain- glacial ice scour	Lake clay and silt; 602 ft.	Frigid (Islands), udic	36	34	36		Black spruce swamp	Navigation Fishery
212Ib Isle Royale	Thin till over bedrock. 600-1247 ft.	Wis. loamy till; Precambrian basaltic lavas-conglomerates	Haplorthods, Haplumbrepts; Frigid, udic	25 26	39 41		White Spruce-Balsam Fir Forest, Aspen-Birch Forest, Black Spruce Swamp	Few lakes, wetlands, streams; surrounded by Lake Superior	Recreation

221J CENTRAL RIDGE AND VALLEY SECTION

221Ja Rolling Limestone Hills	Open hills; 300-500 ft.	Quaternary, Tertiary cherty clay solution residuum	Paleudults, Dystro- chrepts, Hapludalfs; Thermic, udic	36 55	55 61	175 210	Shortleaf Pine - Pitch Pine - Chestnut Oak WA, Eastern Redcedar Pignut Hickory WA	Medium intermit- tent / perennial streams common	Agriculture Forestry
221Jb Sandstone Hills	Open hills; 1000-3000 ft.	Quaternary, Tertiary cherty clay solution, sandy shaly decompo- sition residuum	Rhodudults; Paleudults; Hapludults; Mesic, Udic	36 55	55 61	170 210	Scarlet Oak - Chestnut Oak (Sandstone, Shale) SWA, Blackjack Oak - Eastern Redcedar SWA	Medium intermit- tent / perennial streams common	Agriculture Forestry
221Jc Holston Valley	Open hills; 300-500 ft.	Quaternary, Tertiary sandy, shaly decompo- sition residuum	Eutrochrepts, Haplu- dalfs, Dystrochrepts; Mesic, udic	36 55	55 61	170 210	Black Oak - White Oak - Hickory (Mockernut, Shagbark) FA	Medium intermit- tent / perennial streams common	Agriculture Forestry

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

M221A NORTHERN RIDGE AND VALLEY SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
M221Aa Ridge and Valley	Plains with low mountains; 1000-3000 ft.	Holocene, Wisconsin acid shale-chip loamy colluvium, quartzite-block and shale-chip loam colluvium	Dystrochrepts, Fragiudults; Mesic, udic	51 55	61 63	200 210	Chestnut Oak - Oak (White, S. Red, Black) - Hickory (Mockernut, Pignut) FA, Shortleaf Pine - Pitch Pine - Chestnut Oak WA	Intermittent and perennial streams common	Forestry
M221Ab Great Valley of Virginia	Open low mountains, 1000-3000 ft.	Quaternary, Tertiary cherty clay solution residuum, red clay solution residuum	Paleudults, Hapludults, rock outcrops; Mesic, udic	35 50	46 55	120 170	Chestnut Oak - Oak (White, S. Red, Black) - Hickory (Mockernut, Pignut) FA, Shortleaf Pine - Virginia Pine - (Pitch Pine) FA	Intermittent and perennial streams common	Agriculture Rural Forestry
M221Ac Northern Ridge & Valley	Long narrow ridges, broad-narrow valleys, karst; 300-3135 ft.	Loamy residuum, bouldery colluvium; Paleozoic sedimentary-carbonates, anthracite	Hapludalf, Humaquept Fragiudult, Hapludults, Paleudult; Mesic, udic-aquic	38 40	46 50	160	Oak-Heath Dry Forest, Oak-Pine Dry Forest, Red Cedar-White Ash Woodland	Headwater, perennial-intermittent streams, major rivers, trellis-dendritic	Farming, Forestry;
M221Ad Northern Great Valley	Broad, moderately dissected valley, karstic southern half 140-1100 ft.	Cherty clay soln. residuum; Paleo. shale-sandstone-slate north, carbonates southeast	Fragiudults, Humaquepts, Hapludalfs, Paleudults, Dystrochrepts; Mesic, udic	40 44	48 52	160 180	Oak-Heath-Dry Forest, Chinquapin Oak Forest, Sycamore-Box Elder Floodplain Forest	Dendritic perennial-intermittent stream network, major rivers	Farming, Forestry Urban Development

M221B ALLEGHENY MOUNTAINS SECTION

M221Ba Northern High Allegheny Mountains	Dissected plateau, ridge and valley features; 1000-4860 ft.	Sedimentary; Paleozoic sandstone-siltstone-shale-coal, Pennsylvanian limestone	Dystrochrepts, Hapludults; Mesic, udic-aquic	45 55	55 61	140 150	Northern Hardwood Forest, Yellow Birch-Spruce Transitional Forest, Oak-Heath Dry Forest	Dendritic-some trellis-like drainage networks	Forestry Recreation Mining
M221Bb Western Allegheny Mountains	Wide ridges separated by broad valleys; elev. > to NW; 775-3210 ft.	Loamy colluvium; Pennsylvanian sandstone-siltstone-shale-some limestone-coal	Dystrochrepts, Fragiudults; Mesic, udic	40 - 50	48 - 50	140- 160	Oak-Heath Dry Forest, Oak-Pine Dry Forest, Sycamore-Box Elder Floodplain Forest	Dendritic; intermittent and perennial streams	Forestry Recreation Farming
M221Bc Southern High Allegheny Mountains	Rugged mountains Ridge tops mostly level; 2000-4600 ft.	Sedimentary, primarily Mississippian and Pennsylvanian	Dystrochrepts, Hapludults, Fragiudults; Mesic, udic	44 68	53	140	Northern Hardwood Forest, Ridgetop Pitch Pine-Scrub Oak Barrens, Yellow Birch-Spruce Transitional Forest	Dendritic	Forestry Recreation Mining Subsidence
M221Bd Eastern Allegheny Mountain and Valley	Ridge and valley in character; 700-1500 ft.	Sedimentary, Silurian and Devonian Shale	Dystrochrepts, Fragiudults; Mesic, udic	38 40	53	150 160	Oak-Heath Dry Forest, Oak-Pine Dry Forest, Ridgetop Pitch Pine-Scrub Oak Barrens	Trellis pattern	Forestry Recreation Pasture

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M221B ALLEGHENY MOUNTAINS SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
M221Be Western Allegheny Mountain and Valley	Eroded plateau with deep, V-shaped valleys; 656-3800	Sedimentary, Mississippian shale-limestone	Dystrochrepts, Hapludults, Fragiudults; Mesic, udic	35 48	48 53	150 170	Oak-Heath Dry Forest, Oak-Pine Dry Forest,	Trellis pattern	Agriculture Recreation
M221Bf Allegheny Mountain Plateau	Round-flat uplands, shallow-moderately- angular valleys; 880-2625 ft	Loamy colluvium; Mississippian-Pennsyl- vanian sandstone- siltstone-shale	Fragiudults; Mesic, udic	39 41	47 49	130 160	Northern Hardwood Forest, Oak-Heath Dry Forest	Dendritic drainage Perennial streams	Forestry Recreation

M221C NORTHERN CUMBERLAND MOUNTAINS SECTION

M221Ca Western Coal Fields	Low mountains; 1000-3000 ft.	Holocene sandstone and shale-clast loamy colluvium	Dystrochrepts, Hapludults, Fragiudults, Strip Mines; Mesic, udic	46	55	175	Chestnut Oak - Oak (White, S. Red, Black) - Hickory (Mockernut, Pignut) FA, Sycamore - (Sweetgum, Yellow-poplar) FA	Intermittent and perennial streams common	Forestry Mining
M221Cb Eastern Coal Fields	Low mountains; 1000-3000 ft.	Holocene sandstone and shale-clast loamy colluvium	Dystrochrepts, Hapludults, Fragiudults, Strip Mines; Mesic, Udic	46	55	175	Chestnut Oak - Oak (White, S. Red, Black) - Hickory (Mockernut, Pignut) FA, Sycamore - (Sweetgum, Yellow-poplar) FA	Intermittent and perennial streams common	Forestry Mining
M221Cc Black Mountains	Low mountains; 1000-3000 ft.	Holocene sandstone and shale-clast loamy colluvium; colluvium with huge blocks	Hapludults; Fragiudults; Dystrochrepts; Mesic, Udic	46	55	175	Chestnut Oak - Oak (White, S. Red, Black) - Hickory (Mockernut, Pignut) FA, White Oak - Mockernut Hic- kory (Pignut Hickory) FA	Intermittent and perennial streams common	Forestry Mining
M221Cd (Milo Pyne's)	Low mountains; 1000-3000 ft.	Holocene sandstone and shale-clast loamy colluvium	Hapludults; Dystrochrepts; Mesic, Udic	46	55	175	Chestnut Oak - Oak (White, S. Red, Black) - Hickory (Mockernut, Pignut) FA, American Beech - White Oak FA	Intermittent and perennial streams common	Forestry Mining
M221Ce Pine and (The) Cumberland Mountain	Low mountains; 1000-3000 ft.	Holocene sandstone and shale-clast loamy colluvium	Hapludults; Dystrochrepts; Mesic, Udic	46	55	175	Chestnut Oak - N. Red Oak - Hickory (Mockernut, Pignut, Shagbark) FA, American Beech - White Oak FA Yellow-poplar) FA	Intermittent and perennial streams common	Forestry Mining

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M221D BLUE RIDGE MOUNTAINS SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
M221Da Northern Blue Ridge Mountains	Open low mountains; 1000-4000 ft.	Holocene shale-chip loam colluvium with quartzite-clast mantle	Kanhapludults, Dystrochrepts; Mesic, udic	40 50	50 61	150 220	Chestnut Oak - Scarlet Oak- (Black Oak) FA	Intermittent and perennial streams common	Forestry Recreation
M221Db Central Blue Ridge Mountains	Low mountains; 1500-4000 ft.	Holocene sandy clay saprolite, mafic-boul- der loamy colluvium	HapludalFs, Hapludults, Kanhapludults; Mesic, udic	40 50	50 61	150 220	Chestnut Oak - Scarlet Oak- (Black Oak) FA, Eastern White Pine - Oak (Scarlet, Chestnut) FA	Intermittent and perennial streams common	Forestry Urban
M221Dc Southern Blue Ridge Mountains	Low mountains; 2000-5000 ft.	Holocene, Tertiary granitic-boulder col- luvium, silty/clayey sandy saprolite	Dystrochrepts, Kanhapludults, Hapludults; Mesic, udic	35 55	50 61	150 220	Chestnut Oak - Scarlet Oak- (Black Oak) FA, N. Red Oak FA, Red Spruce - Fraser Fir FA	Perennial streams common, few large rivers	Forestry Recreation
M221Dd Metasedimentary Mountains	Low mountains; 2000-5000 ft.	Holocene granitic- boulder colluvium	Dystrochrepts, Kan- hapludults, Haplu- dults; Mesic, udic	40 50	50 61	150 220	Chestnut Oak FA, N. Red Oak FA, Red Spruce - Fraser Fir FA	Perennial streams common, large riv- ers uncommon	Forestry Recreation

222A OZARK HIGHLANDS SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
222Aa St. Francis Knobs and Basins	Steep, irregular hills; 400-1700 ft.	Sandy-silty saprolite; Precambrian, Cambrian igneous and sedimentary	Fragiudults, Hapludults, HapludalFs; Mesic, udic	44	55	180 185	Little Bluestem Acid Glade Post-Blackjack Oak Wood- land, Black-Scarlet Oak Forest	Small rivers, perennial streams and shut-ins	Forestry Pasture
222Ab Central Plateau	Irregular plains; karst; 300-1600 ft.	Cherty clay residuum; Ordovician cherty dolomites, sandstones	FragiudalFs, HapludalFs, PaleudalFs; Mesic, udic	42 46	55	185 190	L.Bluestem-Indian Grass Prairie, Post-Blackjack Oak Woodland-Forest, Black-Scarlet Oak Forest	Intermittent headwater streams sinkholes & ponds	Pasture Forestry
222Ac Osage River Hills	Hills, entrenched valleys; karst; 600-1100 ft.	Cherty clay residuum; Ordovician cherty dolomites, sandstones	HapludalFs, PaleudalFs, FragiudalFs; Mesic, udic	41 43	55	190 195	Post-Blackjack Oak Wood- land-Forest, Black-White Oak Woodland-Forest, White Oak Forest	Dendritic spring- fed perennial strms; reservoirs	Recreation Pasture Forestry
222Ad Gasconade River Hills	Hills, entrenched valleys; karst; 600-1100 ft.	Cherty clay residuum; Ordovician cherty dolomites, sandstones	Hapludults, Paleudults, Fragiudults; Mesic, udic	41 43	55	190	Shortleaf Pine-Oak Wood- land-Forest, White-Black Oak Woodland-Forest, White Oak Forest	Dendritic spring- fed perennial strms; reservoirs	Forestry Recreation Pasture
222Ae Meramec River Hills	Hills, entrenched valleys; karst; 500-1300 ft.	Cherty clay residuum; Cambrian, Ordovician cherty dolomites	Paleudults, HapludalFs, FragiudalFs; Mesic, udic	41 43	55	180 190	Shortleaf Pine-Oak Wood- land-Forest, White-Black Oak-Woodland-Forest, White Oak Forest	Dendritic spring- fed perennial strms; ponds	Forestry Recreation Pasture Mining

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

222A OZARK HIGHLANDS SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
222Af Current River Hills	High hills with entrenched valleys; karst; 400-1300 ft.	Cherty clay residuum; Cambrian, Ordovician cherty dolomites, sandstones	Paleudalfts, Fragiudulfts, Paleudulfts; Mesic, udic	44	55	180 190	Shortleaf Pine-Oak Wood- land-Forest, Black-Scarlet Oak Forest, White Oak Forest	Dendritic, deeply entrenched spring -fed streams	Forestry Recreation Mining
222Ag White River Hills	Hills, entrenched valleys; karst 600-1600 ft.	Cherty clay residuum; Ordovician cherty dolomites	Hapludalfts, Paleudulfts, Hapludolls; Mesic, udic	43	56	190	Little Bluestem-Sideoats Alkaline Glade, Post- Blackjack Oak Woodland, White-Black Oak Forest	Dendritic, deeply entrenched strms now reservoirs	Recreation Pasture Forestry
222Ah Elk River Hills	Hills, entrenched valleys; karst; 900-1400 ft.	Cherty clay residuum; Miss. cherty lime- stones	Hapludalfts, Paleudulfts, Hapludolls; Mesic, udic	43	55	190	Post-Blackjack Oak Wood- land-Forest, Post-Black Oak Woodland-Forest, White-Black Oak Forest	Dendritic spring- fed perennial streams; ponds	Forestry Recreation Poultry
222Ai Prairie Ozark Border	Smooth plain; 800-1100 ft.	Cherty clay residuum; Ordovician, Missis- sippian cherty carbonates	Hapludolls, Hapludalfts, Paleudalfts; Mesic, udic	41	54	190 195	Big Bluestem-Indian Grass Prairie, Little Bluestem- Indian Grass Prairie, Post -Blackjack Oak Woodland	Intermittent headwater streams; ponds	Agriculture Pasture Industry Urban
222Aj Inner Ozark Border	Hills, entrenched valleys, karst; 500-1100 ft.	Cherty clay residuum; Ordovician cherty dolomites	Paleudulfts, Hapludalfts, Fragiudalfts; Mesic, udic	40	55	185 195	Little Bluestem-Sideoats Alkaline Glade, Post-Black jack Oak Woodland, White- Black Oak Woodland-Forest	Dendritic entrnch perennial streams; ponds	Pasture Agriculture Industry
222Ak Outer Ozark Border	Hills, entrenched valleys, karst; 400-900 ft.	Cherty, noncherty clay residuum; Paleozoic sedimentary rocks	Hapludalfts, Haplud- olls, Paleudalfts; Mesic, udic	40 46	55	190 195	White-Black Oak Woodland White Oak Forest Sugar Maple-Oak Forest	Dendritic entrnch perennial streams; ponds	Pasture Recreation Forestry
222Al Black River Ozark Border	Irregular plains & low hills, karst; 300-900 ft.	Cherty clay residuum; Ordovician sandstones and cherty dolomites	Fragiudulfts, Paleudulfts, Fragiudalfts; Mesic, thermic, udic	48	56	190 195	Shortleaf Pine-Oak Wood- land, Post-Blackjack Oak Woodland-Forest, Mixed Oak-Sweetgum Forest	Perennial streams local riverine wtlnds; reservoir	Forestry Pasture Recreation
222Am Springfield Plain	Smooth plain, karst; 800-1700 ft.	Cherty clay residuum; Mississippian lime- stones, some very cherty	Fragiudalfts, Fragiudulfts, Paleudalfts; Mesic, udic	43	55	190	Big Bluestem-Indian Grass Prairie, Little Bluestem- Indian Grass Prairie, Post -Blackjack Oak Woodland	Perennial spring- fed strms, ponds, sinkholes, reserv	Pasture Agriculture Recreation Urban
222An Springfield Plateau	Irregular plain, karst; 800-1400 ft.	Cherty clay residuum; Mississippian lime- stones, some very cherty	Fragiudulfts, Paleudulfts, Albaqualfts; Mesic, udic	43	55	190	Big Bluestem-Indian Grass Prairie, Post-Blackjack Oak Woodland, White-Black Oak Forest	Perennial spring- fed strms, ponds, sinkholes, reserv	Pasture Agriculture Recreation Urban

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

222A OZARK HIGHLANDS SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
222Ao Mississippi Plain	Alluvial plain; 340-400 ft.	Holocene silty and sandy alluvium Pleistocene outwash	Hapludolls, Udifulvents, Fluvaquents; Mesic, udic	40 46	55 60	190 195	Cottonwood-Willow Forest Green Ash-Elm-Hackberry Forest, Pin Oak (Swamp White Oak) Forest	Large flood-prone engineered river; riverine wetlands	Cropland Urban Industry
222Ap Missouri River Alluvial Plain	Alluvial plain; 400-570 ft.	Holocene silty and sandy alluvium; Pleistocene outwash	Hapludolls, Fluvaquents, Udifulvents; Mesic, udic	40	54	190	Cottonwood-Willow Forest Green Ash-Elm-Hackberry Forest, Pin Oak (Swamp White Oak) Forest	Large flood-prone engineered river; riverine wetlands	Agriculture
222Aq Illinois Ozarks	Dissected bluffs, karst; 350-1025 ft.	Quaternary loess, cherty clay residuum; Devonian, Mississippian cherty limestones	Hapludalfs, Ochraqualfs, Paleudalfs; Mesic, udic	39- 45	56- 60	182- 208	White Oak-Black Oak Forest, Shortleaf Pine- Oak Forest, Little Blue- stem Sideoats Grama glade, Beech-Sugar Maple Forest	Deeply incised, high-gradient streams; springs;	Forestry Mining Recreation

222C UPPER GULF COASTAL PLAIN SECTION

222Ca Cretaceous Hills	Low rolling hills 400-580 ft	Quaternary loess; Cretaceous, Tertiary clay-sand-gravel; Mississippian limestone	Hapludalfs, Fragi- udalfs, Dystro- chrepts; Thermic, mesic, udic	42 46	57 60	185 208	White Oak-Red Oak Forest, Southern Red Oak- Mixed Oak Forest, Post Oak- Mixed Oak Woodland-Barrens	creeks, inter- mittent streams, seep springs	Forestry Agriculture Quarrying
222Cb Northern Deep Loess Hills and Bluffs	Irregular plains; 100-300 ft.	Miocene-Holocene upland chert-pebble gravel and sand, al- luvial silt and sand	Fragiudalfs, Hapludalfs, Hapludults; Thermic, udic	45 60	61 68	200 280	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA	Medium to large streams and rivers	Agriculture Forestry
222Cc Deep Loess Hills and Bluffs	Irregular plains; 100-300 ft.	Wisconsin, Illinois loess and loessial al- luvium; alluvial silt and sand Holocene	Fragiudalfs, Hapludalfs, Fluvaquents; Thermic, udic, aquic	45 60	61 68	200 280	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, Sugar Maple - N. Red Oak - Bitter-nut Hickory FA	Medium intermit- tent / perennial stream, rivers	Agriculture Forestry
222Cd Clay Hills	Irregular plains; 100-300 ft.	Early Pleistocene to Miocene upland chert- pebble gravel and sand; fine sand decom- position residuum	Haplorthods, Fragiudalfs, Hapludults; Mesic, thermic, udic	45 60	61 68	200 280	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, Shortleaf Pine -Oak, White, S. Red, Post, Black) FA	Medium streams and rivers common	Agriculture Forestry
222Ce Northern Loessial Hills	Irregular plains; 100-300 ft.	Pleistocene, Miocene clayey fine sand de- composition residuum	Paleudults, Fragiudults, Hapludults; Thermic, udic	45 60	61 68	200 280	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, Sugar Maple - N. Red Oak - Bitter-nut Hickory FA	Medium intermit- tent / perennial streams common	Agriculture Forestry

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222C UPPER GULF COASTAL PLAIN SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
222Cf Northern Pontotoc Ridge	Irregular plains; 100-300 ft.	Quaternary, Tertiary ferruginous sand de- composition residuum	Paleudults, Paleudalfs; Fragiudalfs; Thermic, udic	45 60	61 68	200 280	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, White Oak - Oak (Scarlet, Black, N. Red) - Hickory (Mockernut, Pignut, Shag- bark FA	Medium intermit- tent / perennial streams few	Forestry
222Cg Upper Loam Hills	Irregular plains; 100-300 ft.	Wisconsin, Illinoian clayey fine sand de- composition residuum, Holocene alluvial gravelly sand	Paleudults, Hapludults; Fluvaquents; Thermic, udic, aquic	45 60	61 68	200 280	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA	Medium intermit- tent / perennial streams, rivers	Agriculture
222Ch Ohio and Cache River Alluvial Plain	Flat alluvial plain and low terraces 310-350 ft	Quaternary alluvial mud, sand, outwash sand, gravel; Cretac- eous, Tertiary clay, sand, gravel; Missis- sippian limestone	Udifuvents, Fluvaquents, Haplaquepts, Hapludalfs, Fragi- udalfs; Thermic, mesic, udic, aquic	42 45	57 60	185 208	Cypress-Tupelo Swamps, Pin Oak-Swamp White Oak Flatwoods, Watercup Oak- Sweetgum Forest	Rivers, creeks, oxbow lakes, ponds, sloughs, wetlands	Agriculture Forestry

222D INTERIOR LOW PLATEAU, SHAWNEE HILLS SECTION

222Da Interior Western Coalfields	Irregular plains; 100-300 ft.	Holocene, Wisconsin loess, slackwater lake silt, clay, sand and gravel; sandy silty colluvium	Fragiudalfs; Hapludalfs; Mesic, udic	46	57	185	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, Oak (Willow, Water, Laurel) FA	Small to medium intermittent and perennial streams	Forestry Mining
222Db Lower Ohio- Cache-Wabash Alluvial plains	Flat plains; 0-100 ft	Holocene alluvium; Pleistocene outwash; Late Paleozoic shale- sandstone	Hapludolls, Haplaquolls, Hapludalfs; Mesic, aquic-udic	44 46	55 57	179 200+	Oak-Sweetgum Bottomland Forests, Cypress-Tupelo Swamps, Bulrush-Cattail Marsh	Silt bottomed low gradient rivers and streams	Agriculture
222Dc Outer Western Coal Fields	Irregular plains; 100-300 ft.	Holocene, Wisconsin sandy silty and silty clayey sand colluvium; L. Wis slackwater lake silt, clay, gravel	Fragiudalfs; Hapludalfs; Mesic, udic	46	57	185	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, American Beech - Sugar Maple - (Yellow-poplar) FA	Small to medium intermittent and perennial streams	Forestry Mining
222Dd Marion Hills	Irregular plains; 300-500 ft.	Quaternary, Tertiary silty clayey sand col- luvium, cherty clay solution residuum	Fragiudalfs; Hapludalfs; Mesic and thermic, udic	46	57	185	Chestnut Oak - Oak (White, S. Red, Black) - Hickory (Mockernut, Pignut) FA, S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA	Perennial streams common	Agriculture

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222D INTERIOR LOW PLATEAU, SHAWNEE HILLS SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
222De Crawford Uplands	Open hills, 350-925 ft.	Holocene silty-sandy colluvium; Mississip- pian-Pennsylvanian sandstone-shale	HapludalFs, FragiudalFs, Hapludults; Mesic, udic	43 46	54 57	170 200+	White Oak-Red Oak Forest, Beech-Maple Forest	Medium- to high- gradient peren- nial and intermit- tent streams	Forestry Agriculture Urban
222Df Crawford Escarpment	Open high hills, bluffs; 400-1000 ft.	Holocene sand-silt- clay colluvium; Miss- issippian sandstone- shale-limestone	FragiudalFs, Haplu- dalFs, PaleudalFs, Hapludults; Mesic, udic	44 47	52 53	175 190	White Oak-Red Oak Forest, Beech-Maple Forest	Medium- to high- gradient peren- nial & intermit- tent streams	Forestry
222Dg Southern Dripping Springs	Open hills; 300-500 ft.	Sandy silty colluvium; Silty clayey sand colluvium; Slackwater lake silt-clay-sand and gravel	FragiudalFs; HapludalFs; Mesic, udic	46	57	185	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, American Beech - Sugar Maple - (Yellow-poplar) FA	Medium to high gradient perennial and intermittent streams	Forestry Mining
222Dh Greater Shawnee Hills Hills	Rough hills, dis- sected cuestas, bluffs, minor karst; 450-1050 ft.	Quaternary loess; Penn. sandstone-shale, Miss. limestone	HapludalFs, FragiudalFs, Dystrochrepts; Mesic, udic	42 46	56 56	182 208	White Oak-Red Oak Forest, Post Oak-Blackjack Oak Forest, Blackjack Oak- Cedar Glades	deeply incised creeks and intermittent streams; springs	Forestry Recreation
222Di Lesser Shawnee Hills	Rolling hills, bluffs; karst 350-550 ft.	Quaternary loess; Mississippian sand- stone, shale, lime- stone	HapludalFs, FragiudalFs, Dystrochrepts; Mesic and thermic, udic	42 46	56 59	182 208	White Oak-Red Oak Forest, Post Oak-Blackjack Oak Forest, Blackjack Oak- Cedar Glades	mid to low grad- ient creeks and intermittent streams	Agriculture Forestry, Recreation
222Dj Northern Dripping Springs	Open hills; 300-500 ft.	Sandy silty colluvium; Silty clayey sand colluvium; Slackwater lake silt-clay-sand and gravel	FragiudalFs; HapludalFs; Mesic, udic	46	57	185	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, American Beech - Sugar Maple - (Yellow-poplar) FA	Medium to high gradient perennial and intermittent streams	Forestry Mining

222E INTERIOR LOW PLATEAU, HIGHLAND RIM SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
222Ea Eastern Highland Rim	Irregular plains; 100-300 ft.	Quaternary and older Cenozoic, chert- fragment solution residuum	PaleudalFs; Paleudults; HapludalFs; Mesic, udic	44 54	55 61	180 205	Chestnut Oak - Scarlet Oak- (Black Oak) FA, S. Red Oak- White Oak - (Post Oak) - Hickory (Pignut, Mockernut, Sand) FA	Perennial streams few to common.	Agriculture

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222E INTERIOR LOW PLATEAU, HIGHLAND RIM SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
222Eb Eastern Karst Plain	Open high hills; 500-1000 ft.	Quaternary cherty clay solution residuum; chert fragment solution residuum	Paleudults; Eutrochrepts; Paleudalfs; Thermic and mesic, Udic	44 54	55 61	180 205	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, American Beech - Sugar Maple - (Yellow-poplar) FA	Perennial streams -common/medium rivers few	Agriculture

222E INTERIOR LOW PLATEAU, HIGHLAND RIM SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
222Ec Outer Nashville Basin	Open hills; 300-500 ft.	Cenozoic, Quaternary cherty silty clay, locally phosphatic solution residuum	Hapludults, Paleudults, Hapludalfs; Thermic, udic	50	57 61	192	White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA, American Beech - Sugar Maple - (Yellow-poplar) FA	Perennial streams few to common	Forestry Agriculture
222Ed Inner Nashville Basin	Plains with hills; 300-500 ft.	Cenozoic, Quaternary thin clayey solution residuum	Hapludalfs, Rendolls Hapludolls; Thermic, udic	50	48 55	140 160	White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA, Sugar Maple- Bitter-nut Hickory FA	Perennial streams few to common	Urban Agriculture
222Ee Highland Rim-Hilly and Rolling	Irregular plains; 100-300 ft.	Quaternary and older Cenozoic, chert- fragment solution residuum	Fragiudults; Paleudults; Thermic, udic	44 54	55 61	180 205	Chestnut Oak - Scarlet Oak- (Black Oak) FA, S. Red Oak- White Oak - (Post Oak) - Hickory (Pignut, Mockernut, Sand) FA	Few to common small to medium perennial streams	Forestry Agriculture
222Ef Tennessee- Gaspar Valley	Irregular plains; 100-300 ft.	Cenozoic, Quaternary chert-fragment solu- tion residuum	Paleudults; Thermic, udic	36 55	55 61	170 210	Chestnut Oak - Scarlet Oak- (Black Oak) FA, S. Red Oak- White Oak - (Post Oak) - Hickory (Pignut, Mockernut, Sand) FA	Few to common small to medium perennial streams	Agriculture
222Eg Western Penneroyal Karst Plain	Open hills; 300-500 ft.	Quaternary and older Cenozoic chert-frag- ment solution resid- uum; cherty clay sol- ution residuum; cherty silty clay, phosphatic solution residuum	Paleudults, Fragiudults; Thermic, udic	44 54	55 61	180 205	S. Red Oak - White Oak (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, Big Bluestem - (Yellow Indian-grass) HA	Small to medium perennial streams common	Forestry
222Eh Penneroyal Karst Plain	Irregular plains; 100-300 ft.	Quaternary, Tertiary cherty clay solution residuum; chert frag- ment solution residuum	Paleudalfs; Thermic, udic	44 54	55 61	180 205	S. Red Oak - White Oak (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, Big Bluestem - (Yellow Indian-grass) HA	Perennial streams medium and common- few to common medium rivers	Forestry

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222E INTERIOR LOW PLATEAU, HIGHLAND RIM SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
222Ei Western Knobs	Open hills; 300-500 ft.	Holocene, Wisconsin shale-chip loamy col- luvium, cherty clay solution residuum- sandy clay decomp.	Paleudults, Dystrochrepts; Mesic, thermic, udic	44 54	55 61	180 205	Chestnut Oak - Oak (White, S. Red, Black) - Hickory (Mockernut, Pignut) FA, Sugar Maple - N. Red Oak - Bitter-nut Hickory FA	Intermittent streams few to common	Forestry
222Ej Eastern Knobs Transition	Open hills; 300-500 ft.	Quaternary, Tertiary cherty clay solution and sandy clay decom- position residuum; shale chip loamy colluvium	Dystrochrepts; Eutrochrepts; Hapludults; Mesic, udic	46	55	175	Chestnut Oak - Oak (White, S. Red, Black) - Hickory (Mockernut, Pignut) FA, White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA	Small to medium intermittent streams common	Forestry
222Ek Mitchell Karst Plain	Irregular plain 100-500 ft	Thin discontinuous loess, silty-clayey residuum-colluvium; Paleozoic carbonates	Paleudalfs, Fragiudalfs, Argiudolls; Mesic, udic	43. 45	52 54	175 200	White Oak-Red Oak Forest, Little Bluestem-Sideoats Grass Glade, Beech-Maple Forest	Rocky high-medium grade perennial- intermit. streams, few in karst topo.	Agriculture Mining, Forestry
222El Knobstone Escarpment	Open high hills 500-1000 ft	Thin discontinuous loess, silty-sandy colluvium: Paleozoic siltstone-shale	Fragiudalfs, Hapludalfs, Hapludults; Mesic, udic	43 44	54 55	173 190	Chestnut Oak-Mixed Oak Forest, Virginia Pine-Oak Forest, Beech-Maple Forest	Small intermittent and ephemeral high gradient streams	Forestry
222Em Brown County Hills	Open hills with considerable relief 100-500 ft	Thin discontinuous loess, silty-clayey, colluvium: Paleozoic shale-siltstone	Fragiudalfs, Hapludalfs, Hapludults; Mesic, udic	41 43	52 53	170 180+	Upland Oak-Hickory Forest Beech-Maple Forest Chestnut Oak-Mixed Oak Forest	Medium to high gradient perennial and intermittent streams and low	Forestry Recreation
222En Kinniconick and Licking Knobs	High hills; 500-1000 ft.	Holocene, Wisconsin shale-chip loamy colluvium	Hapludults; Dystrochrepts; Hapludults; Mesic, udic	46	55	175	Chestnut Oak - Oak (White, S. Red, Black) - Hickory (Mockernut, Pignut) FA, White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA	Medium to high gradient inter- mittent and perennial streams	Forestry
222Eo The Cliffs	High hills; 500-1000 ft.	Quaternary, Tertiary sandstone, shale-clast loamy colluvium, shale -chip loamy colluvium, cherty clay solution	Dystrochrepts; Hapludalfs; Hapludults; Mesic, udic	46	55	175	Chestnut Oak - Oak (White, S. Red, Black) - Hickory (Mockernut, Pignut) FA, Chestnut Oak FA	Medium to high gradient inter- mittent and perennial streams	Forestry

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

222F INTERIOR LOW PLATEAU, BLUEGRASS SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
222Fa Outer Bluegrass	Irregular plains, open hills; 100-500 ft.	Holocene carbonate- clast loamy colluvium	Hapludalfs, Paleudalfs, Hapludolls; Mesic, udic	44	55	180	White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA, American Beech - Sugar Maple - Yellow-poplar) FA	Intermittent and perennial streams common	Agriculture
222Fb Inner Bluegrass	Irregular plains, escarpments along rivers; 100-300 ft.	Quaternary and Terti- ary clay loam solution residuum	Paleudalfs, Hapludalfs, Hapludolls; Mesic, udic	44	55	180	White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA, Sugar Maple- N. Red Oak - Bitter-nut Hickory FA	Intermittent and perennial streams few to common	Agriculture
222Fc Western Bluegrass	Open hills, table- lands; 300-500 ft.	Holocene stony silty clay colluvium and alluvial sands	Hapludalfs, Dystro- chrepts, Fluva- quents; Mesic, udic	44	55	180	White Oak - N. Red Oak - Hickory (Shagbark-Pignut- Mockernut) FA	Tributaries of Ohio River, oxbow lakes common	Agriculture Forestry
222Fd Northern Bluegrass	Irregular plains, dissected plateau; 400-925 ft.	Discontinuous loess, silty, clayey residuum; Paleozoic carbonates, shales	Hapludalfs, Paleudalfs, Argiudolls, Fragiudalfs; Mesic, udic	40 44	54 55	158 197	White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA, Big Bluestem-Indiangrass Prairie	Rocky, gravel, bottomed medium gradient perennial streams and rivers Ohio River, Ohio	Forestry Agriculture
222Fe Muscatatuck Flats and Valleys	Irregular plains; 500-850 ft	Moderate loess cap, pre-Wis. loam, sandy till; Early Paleozoic shales, carbonates	Fragiudalfs, Fragiaqualfs, Hapludults; Mesic, udic, aquic	42 46	52 56	168 190	Beech-Maple Flatwoods, Mixed Mesophytic Forest,	Medium gradient streams on on valley slopes	Agriculture Forestry
222Ff Scottsburg Lowland	Irregular plains; 400-600 ft	Pleistocene loess, loam, sandy loam till; Early Paleozoic shales, carbonates	Udifuvents, Fluvaquents; Mesic, udic, aquic	41 44	52 54	168 190	Oak-Sweetgum Swamp, Cottonwood-Maple Forest	Low gradient silt- bottomed perennial streams, rivers, and wetlands brush river	Agriculture

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

222G CENTRAL TILL PLAINS, OAK-HICKORY SECTION

222Ga Effingham Plain	Flat to rolling plain, shallow alluvial valleys; 420-620	Pleistocene loamy till; Pennsylvanian shale-sandstone-coal	Hapludalfs, Epia- qualfs, Albaqualfs, Natraqualfs; Mesic, udic-aquic	36 41	54 56	172 190	Big Bluestem-Indiangrass Prairie, Bur Oak-Mixed Oak Savanna-Woodland, Post Oak Flatwood	Low gradient rivers and creeks	Agriculture Mining
222Gb Mount Vernon Hill Country	Rolling plains, alluvial valleys 390-600 ft.	Pleistocene loamy till, lake deposits; Pennsylvanian shale- sandstone-coal	Hapludalfs, Epia- qualfs, Fragiudalfs, Albaqualfs; Mesic, udic, aquic	39 43	55 57	180 198	Bur Oak-Mixed Oak Savanna- Woodland, Big Bluestem- Indiangrass Prairie, Post Oak Flatwood	Medium gradient rivers and creeks; oxbow lakes	Agriculture Forestry Mining

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

222G CENTRAL TILL PLAINS, OAK-HICKORY SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
222Gc Lower Wabash Alluvial Plain	Flat alluvial plain, terraces; seismic zone; 360-400 ft	Holocene alluvial sand-mud, Pleistocene outwash sand-gravel; Paleozoic sedimentary	Hapludolls, Endoaquolls, Udipsamments; Hapludalfs; Mesic, udic, aquic	40 45	55 58	180 195	Silver Maple Forest, Big Bluestem-Indiangrass Prairie, White Oak-Red Oak Forest	Low gradient rivers and creeks; oxbow lakes, sloughs	Agriculture Forestry Mining
222Gd Wabash Uplands	Dissected paleoterraces; low bluffs 380-580 ft.	Pleistocene outwash sand and gravel; Pennsylvanian shale, sandstone, coal	Hapludalfs, Epiaqualfs; Mesic, udic, aquic	40 45	55 58	180 195	White Oak-Red Oak Forest, Big Bluestem-Indiangrass Prairie, Silver Maple Forest	Medium gradient creeks	Agriculture Mining
222Ge Southwest Indiana Glaciated Lowlands	Open low hills, paleodunes, strip mines 470-740 ft.	L.Wis. loamy till, loess, dune sand; Paleozoic shale-sandstone	Hapludalfs, Fragiudalfs; Mesic, udic	41 46	52 56	175 200+	Big Bluestem-Indiangrass Prairie, Beech-Maple Flatwood	Low gradient small and large rivers, and small perennial streams	Agriculture Mining

222H CENTRAL TILL PLAINS, BEECH-MAPLE SECTION

222Ha Bluffton/Ann Arbor Till Plains	Smooth plain, low morainal ridges, end-ground moraine 640-1032 ft.	Wis. clay, clay loam till, 100-150 ft.; Paleozoic shales, carbonates, sandstones	Hapludalfs, Epiaqualfs, Argiaqualfs; Argiudolls; Mesic, udic	34 37	46 49	150 170	Pin Oak-Swamp White Oak Flatwoods, Beech-Maple Forest	Low gradient, perennial, headwater-intermittent streams common, few lakes	Agricultural Urban Residential
222Hb Miami/Scioto Plain/Tipton Till Plain	Smooth plain, low hills; 530-1550 ft.	Wis. loamy till, thin loess, outwash Paleozoic, carbonates, shale	Hapludalfs, Epiaqualfs, Argiaqualfs; Argiaquolls; Mesic, udic	36 49	49 53	155 180	Pin Oak-Swamp White Oak Flatwoods, Beech-Maple Forest	Low gradient streams, small rivers	Agriculture Urban Residential
222Hc Little Miami Old Drift Plain	Smooth plain, ground moraine, 600-1340 ft.	Illinoian clay-loam till, loess; Paleozoic carbonates	Glossaqualfs, Fragiudalfs, Fragiargiaqualfs; Mesic, aquic, udic	40 43	53 54	167 175	Beech-Maple Forest, Pin Oak-Swamp White Oak Flatwoods	Low Stream density	Agriculture Forestry
222Hd Mad River Interlobate Plains	Interlobate area, extensive outwash bordering moraines; 640-1032 ft.	L.Wis. loamy till, outwash sand, gravel; Paleozoic carbonates	Hapludalfs, Argiaquolls, Endoaquolls; Mesic, udic, aquic	34 37	46 49	159 164	Beech-Maple Forest, White-Red Oak Forest	Abnormally cool main wet Prairie and Marsh	Agriculture Forestry
222He Darby Plains	Low relief, glacial drift 800-1210 ft	L.Wis. loamy till; Paleozoic carbonates	Argiaquolls, Epiaqualfs, Hapludalfs; Mesic, aquic, udic	37 41	50 52	161 170	White-Red Oak Forest Elm-Ash Swamp Forest, Cordgrass Wet Prairie	Low stream density	Forestry Agriculture

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

222H CENTRAL TILL PLAINS, BEECH-MAPLE SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
222Hf Entrenched Valleys	Dissected plain, river valley; 450-930 feet	Holocene alluvium; Pleistocene loamy till outwash, eolian sand, loess Paleozoic sedimentary	Hapludalfs, Epiaqualfs, Argiaquolls; Mesic, udic, aquic	40 44	49 56	165 190	Beech-Maple Forest, Silver Maple Forest, Pin Oak- Swamp White Oak Forest, Cliff & Ravine Communities	Medium gradient, clear, rocky perennial-inter- mittant streams	Agriculture Forestry Recreation

222I LAKE ERIE AND ONTARIO LAKE PLAIN SECTION

222Ia Lake Erie Plain	Irregular plain, 400-1000 ft.	Pleistocene lake silt- clay, wave plane till; Devonian limestone-shale	Hapludalfs, Epiaquepts; Mesic, udic, aquic	33 40	50 51	148 168	No. Hardwood Forest, Oak- Hickory-Ash Dry Forest, Black Oak-White Oak Wood- land, Beechgrass Dune	Lake Erie, few streams	Forestry Fruit Agriculture
222Ib Erie/ Ontario Lake Plain	Lowland plain, glacial; 400-1000 ft.	Late Wis. loamy-clayey till, lake silt, clay, swamp; Paleozoic carbonates, sandstone, shale	Ochraqualfs, Hapluqualfs, Epiaquepts, Eutrochrepts; Mesic, udic	35	47	164	No. Hardwood Forest, Oak- Hickory-Ash Dry Forest, Chinquapin Oak Woodland, White Cedar Limestone Woodland	Lake Ontario, streams, wetlands, deranged drainage	Agriculture Urban
222Ic Eastern Ontario Till Plain	Irregular lowland plain; glacial; 400-1200 ft.	Late Wis. loamy, clayey till, lake silt clay, swamp, alluvium, outwash; Paleozoic dolomite	Hapludalfs, Medisaprists, Dystrochrepts, Ochraqualfs; Mesic, udic	36	47	158	Oak-Hickory-Ash Dry Forest Chinquapin Oak Woodland, No. Hardwood Forest, Inland Salt marsh	Erie Canal, Sene- ca & Cayuga Lakes, streams, wetland, dendritic	Agriculture Development Forestry
222Id Cattaraugus /Finger Lakes and Moraine and Hills	Rolling hills, ground-end moraine 400-2000 ft.	Late Wis. loamy till, minor alluvium, kame deposits; Devonian limestone, sandstone, shale	Hapludalfs, Ochraqualfs; Mesic, udic	33	47	151	Oak-Pine Dry Forest Oak-Hickory-Ash Dry Forest, Northern Hardwood Forest	Deep post-glacial lakes, streams, wetlands	Agriculture Recreation Forestry
222Ie Eastern Ontario Lake Plain	Irregular lowland, glaciated, ice-mold ed, drowned shore; 400-800 ft.	Late Wis. lake silt, clay, sand, gravel, loamy till; Holocene swamp; Ordovician limestone, sedimentary	Fragiochrepts, Eutrochrepts, Medisaprists, Ochraqualf; Mesic, udic, aquic	41	46	173	Oak-Hickory-Ash Dry For- est, Northern Hardwood Forest, No. White Cedar Forest, Alvar Grassland	L. Ontario shore; Oneida Lake; low grade streams, lakes, wetlands	Agriculture Forestry
222If Maumee Lake Plain	Smooth glacial lake plain; 580-750 ft.	Pleistocene loamy, clayey lake sediments, (5-100 ft.); Silurian, Mississippian marine sediments	Ochraqualf, Haplu- dalfs, Haplaquolls, Udipsamments, Haplaquepts; Mesic, udic	30 36	48 51	146 202	Red Maple-Black Ash Seep- age Swamp, No. Hardwood Forest, No. White Cedar Forest, Pine-Heath Woods	Low gradient steams, lakes	Agriculture Urban Forestry
222Ig Lake Erie Sand Plain	Smooth plain, sand sheets, dune 580-750 ft.	L. Wis. lake sand, gravel, clay till; Paleozoic shales, carbonates	Endaquolls, Hapludalfs, Udipsamments; Mesic, udic	31 34	49 50	150 170	Oak-Hickory-Ash Dry For- est, Red Maple-Black Ash Seepage Swamp	Headwater streams, few rivers, wetlands	Agriculture Forestry Development

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

222J SOUTHEASTERN GREAT LAKES

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
222Ja Southeast Lake Michigan Plains and Dunes	Flat plains and sand dunes 580-786 ft.	Holocene eolian sand; Wis. lake sand, gra- vel clay, silt, clay till; Paleozoic shale, carbonates	Haplaquolls, HapludalFs, Argiudolls, Udipsamments; Mesic, udic	32 35	46 49	150 170	Beech-Maple Forest, Hemlock-Sugar Maple Forest, Beachgrass Dunes	Few kettle lakes extensive marshes, several large lakes	Agricultural Horticulture
222Jb Southeast Lake Michigan Moraines	Irregular plains and open hills 580-927 ft.	Wis. clayey, loamy, sandy till; Devonian shale; Miss. marine sedimentary rocks	Haplaquolls, HapludalFs, Argiudolls; Mesic, udic	33 36	45 49	150 170	Beech-Maple Forest, White Oak-Red Oak Forest, Red Maple Swamp	Kettle lakes and intermittent streams, common	Agricultural Horticulture
222Jc Iona Moraines	Flat to rolling plains, ground and end moraine; 583-1115 ft.	Wis. loamy till; Miss-Penn. marine sediments, Jurassic "red beds"	HapludalFs, Argi- aquolls, Haploorthods Udipsamments; Mesic, udic	33 36	44 47	130 160	Beech-Maple Forest, White Oak-Red Oak Forest, Silver Maple Forest	Kettle lakes, in- termittent-peren- nial streams- wetlands, common	Agricultural
222Jd Saginaw Clay Lake and Till Plain	Flat lake plains; 580-831 ft.	Wis. lacustrine sand, silt, muck, peat; Dev. -Penns marine rock, Jurassic "red beds"	Haplaquents, Haplaquods; Mesic, udic	32 34	45 47	150 160	Black Ash-Red Maple Swamp, Bulrush-Cattail Marsh, Big Bluestem-Switchgrass Prairie	No natural lakes; Few large rivers, intermit.-peren. streams, wetlands	Agricultural
222Je Huron Clay Lake and Till Plain	Flat lake plains; 580-1011 ft.	Wis. lake silt, clay, sand, gravel; loam, clay, till; Miss. marine rocks	Haplaquents, Haplaquods; Mesic, udic	32 36	45 47	130 160	Hemlock-Sugar Maple For- est, Black Ash Swamp, Bul- rush-Cattail Marsh	Large wetlands, few intermittent- perennial streams	Agricultural
222Jf Lum Interlobate Moraine	Irregular plains; 720-978 ft.	Wis. loamy till, 0-300 ft. Devonian- Mississippian shale	HapludalFs, Argiudolls; Mesic, udic	33 35	45 46	130 140	White Oak-Red Oak Forest, Tamarack Swamp, Bur Oak- Mixed Oak Savanna	Many kettle lakes, ponds, wetland complexes; inter- mittent-perennial streams	Agricultural
222Jg Jackson Interlobate Moraine	Irregular plains; 840-1199 ft.	Wis. sandy loam till, 0-300 ft., outwash sand, gravel; Devonian, Miss. sedimentary	HapludalFs, Argiudolls; Mesic, udic	34 38	45 47	140- 150	Bur Oak-Mixed Oak Savanna, Big Bluestem-Indiangrass Prairie, Prairie Fen	Many kettle lakes- ponds, wetland complexes, head- water streams	Agriculture Urban
222Jh Kalamazoo/ Elkhart Moraines & Plains	Irregular plain, morainial ridges; 593-1140 ft.	Wis. loam, clay loam till, outwash sand, gravel; eolian sand; Paleozoic shale, carbonates	HapludalFs, Histo- sols, Hapludolls, Argiudolls, Udipsa- ments; Mesic, udic	34 38	46 49	140 170	Little Bluestem-Indian- grass Sand Prairie, Black Oak Barrens, Big Bluestem-Indiangrass Prairie	Small perienial streams, kettle lakes	Agriculture
222Ji Steuben Interlobate Moraines	Irregular plain, few low hills, ice-molded; 912-1200 ft.	Wis. loamy till, out- wash sand-gravel; Pal- eozoic shale and car- bonates	OchraqualFs, Haplu- dalFs, Argiaquolls, Medisapristis; Mesic, aquic, udic	37 38	47 48	150 165	White Oak-Red Oak Forest, Beech Maple Forest, Bulrush-Cattail, Sedge- Meadow, Sedge Fen	Numerous kettle lakes, wetlands, and perienial streams	Agriculture Recreation

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

222J SOUTHEASTERN GREAT LAKES (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
222Jj Southeast Lake Michigan Plains and Dunes	Level plain, dunes; 100-300 ft.	L. Wis. lake clay, silt, sand, gravel, eolian dune sand; Paleozoic carbonates	Argiaquolls, Epiqualfs, Argiudolls; Mesic, aquic, udic	37 37	50 51	175 180	White Oak-Red Oak Forest, Bur Oak-Mixed Oak Savanna, Little Bluestem-Indian grass Sand Prairie	Small rivers, shallow streams, many wetlands	Urban development

222K SOUTHWESTERN GREAT LAKES MORAINAL SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
222Ka Central Wisconsin Sand Plain	Flat sand lake plain 740-1234 ft.	Wis. sandy outwash and lake sediments; Cambrian, sandstone Precambrian gneiss	Quatipsamments; Frigid, mesic, udic	31 33	43 46	120 150	Jack Pine-Oak Barrens; Tamarack Swamp, Sedge Meadow	Streams, no lakes	Wildlife Agriculture
222Kb Central Wisconsin Moraines and Outwash	Pitted outwash, hummocky moraines; 760-1253 ft.	Wis. sandy outwash, loamy till; Cambrian sandstone, Precambrian gneiss, granite	Hapludalts. Udipsamments; Mesic, udic	31 33	43 46	120 150	Northern Pin Oak Forest, Bur Oak Openings, Big Bluestem-Indiangrass Prairie	Common kettle lakes, ponds, wetland	Wildlife Agriculture Forestry
222Kc Lake Winne- bago Clay Plain	Flat till and lake plains; 740-1015 ft.	Wis. lake and reworked till; Ordovician dolomites	Udipsamments; Mesic, udic	32 33	44 45	143 150	Sugar Maple-Basswood Forest; Bur Oak Openings	Important water- ways exist	Agriculture
222Kd South Central Wisconsin Prairie and Savannah	Rolling to hilly, ground-recessional- end moraine; 740-1270 ft.	Wis. sandy outwash, loamy till, clayey lake deposits; Paleozoic carbonates-shale	Hapludalts, Argiudolls; Mesic, udic	32 33	44 46	142 184	Bur Oak Openings, White Oak-Red Oak Forest	Common kettle lakes and rivers	Agriculture
222Ke Southern Green Bay Lobe	Irregular plain, ground-end moraine moraines, lake plain; 740-1194 ft.	Wis. calcareous loamy till, sandy outwash, clayey lake deposits; Paleozoic dolomites	Hapludalts; Mesic, udic	32 34	44 47	142 184	Sugar Maple-Basswood Forest, Bur Oak Openings, White Oak-Black Oak Forest	Common lakes and streams	Agriculture
222Kf Geneva/ Darien Moraines and Till Plains	Irregular plain; ice-molded fea- tures, end moraine 693-1142 ft.	Wis. loess, calcareous loamy till, sandy out- wash; Paleozoic car- bonates-shale	Hapludalts, Argiudolls, Medisaprists; Mesic, udic, aquic	33 35	44 48	142 184	Cordgrass Wet Prairie, Maple-Basswood Forest, White Oak-Black Oak Forest	Few lakes, creeks, and rivers	Agriculture Urban Recreation
222Kg Kenosha/ Lake Michigan Plain and Moraines	Irregular plain, rolling, ground moraine; 580-922 ft.	Wis. loess, loamy till, outwash, lake deposits; Paleozoic carbonates	Epiqualfs, Argiud- olls, Hapludalts, Endoaquolls; Mesic, udic	34 35	48 46	142 184	Big Bluestem-Indiangrass Prairie, Bur Oak Openings, Cordgrass Wet Prairie	No lakes, few rivers	Agriculture Urban Industry

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

222K SOUTHEASTERN GREAT LAKES MORAINAL SECTION (con't)

222Kh Rock River Old Drift Country	Irregular plain, moraines, outwash; 720-1140 ft.	Loess, Pre-Wis. till, Wis. outwash; Ordovi- cian dolomite	Argiudolls, Haplud- alfs, Endoaquolls, Hapludolls; Mesic, udic, aquic	34 35	46 48	150 160	Big Bluestem-Indiangrass Prairie, White Oak-Black Oak Forest, Maple-Basswood Forest	No lakes, numerous small creeks, some larger streams	Agriculture Recreation Urban Development
222Ki Chicago Lake Plain	Level plain with dunes; 590-670 ft.	Quaternary eolian sand and lacustrine clay, silt, muck, peat; Paleozoic carbonates	Argiudolls, Haplu- dalfs, Endoaquolls, Udipsamments; Mesic, aquic, udic	31 33	48 50	162 167	Cordgrass Wet Prairie, Bulrush-Cattail Marsh	Creeks, wetlands	Urban Industry Agriculture
222Km Valparaiso Moraine	Level to gently rolling; knob and kettles 100-300 ft.	Late Wisconsin clayey till; Paleozoic carbonates and shale	Ochraqualfs, Hapludalfs; Mesic, aquic, udic	40 50	49 50	160 175	White Oak-Black Oak Forest, Beech-Maple Forest, Big Bluestem- Indiangrass Prairie	Kettle lakes, small perennial streams	Agriculture Urban

222L NORTH CENTRAL U.S. DRIFTLESS AND ESCARPMENT SECTION

222La Menominee Eroded Pre- Wisconsin Till	Steep to Rolling rocky land 724-1258 ft.	Pleistocene; Cambrian sandstone, dolomite, and shale	Hapludalfs, Quartzipsamments; Frigid and mesic, udic	29 30	42 44	138 143	Bur Oak Openings, Big Bluestem-Indiangrass Prairie, Maple-Basswood Forest	No lakes	Agriculture Forestry
222Lb Melrose Oak Forest and Savannah	Hilly to Rolling slopes 652-1396 ft.	Pleistocene; Cambrian siltstone and sand- stone	Hapludalfs; Frigid and mesic, udic	30 33	43 46	135 140	Bur Oak Opening, Little Bluestem-Indiangrass Prairie, Maple-Basswood		Agriculture
222Lc Mississippi /Wisconsin River Ravines	Rolling to Steep valleys 600-1457 ft.	Pleistocene, alluvium sheetwash alluvium, loess, loamy till; Ordovician dolomite- limestone, sandstone	Hapludalfs; Mesic udic	29 34	43 48	140 160	Little Bluestem-Indian grass prairie, Sugar Maple-Basswood Forest, White Oak-Black Oak Forest	Mississippi River No lakes	Agriculture
222Ld Kickapoo/ Wisconsin River Ravines	Rolling to Very Steep valleys 675-1494 ft.	Pleistocene; Ordovician dolomite, shale; Cambrian sandstone	Hapludalfs; mesic, udic	32 33	44 47	138 150	Sugar Maple-Basswood Forest, Bur Oak Openings- Woodland, White Oak-Black Oak Forest	no lakes	Agriculture
222Le Mineral Point Prairie/ Savannah	Rolling hills, dissected ground moraine, bluffs 657-1284 ft.	Holocene cherty col- luvium, alluvium; Pleistocene loess; Paleozoic carbonates- shale, sandstone	Hapludalfs, Endoaqualfs, Eutrochrepts; mesic, udic, aquic	33 34	45 48	136 160	White Oak-Black Oak Forest, Big Bluestem- Indiangrass Prairie, Bur Oak Openings	medium gradient rivers and creeks	agriculture Recreation Forestry
222Lf Western Paleozoic Plateau	Gently to slightly sloping 683-1360 ft.	Pleistocene loamy- clayey till, colluvium sheetwash alluvium; Devonian limestone	Hapludalfs; mesic, udic	29 32	44 45	143 150	Little Bluestem-Indian grass Prairie, Bur Oak Openings, White Oak-Black Oak Forest	Major Rivers flow through	Forestry & Agriculture

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

222M MINNESOTA AND NORTHEAST IOWA MORAINAL SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
222Ma Alexandria Moraine/Hardwood Hills	Irregular plains, stagnation-end moraines, 940-1658 ft.	Wis. loamy till and sandy outwash; Precambrian granite; Cretaceous shale	Aquolls, Borolls, Udolls; Frigid, udic	22 27	39 43	122 140	Big Bluestem-Indiangrass Prairie, Bur Oak Openings- Woodland, Maple-Basswood Forest	Mississippi River, head- waters of many streams,	Agriculture Recreation
222Mb Big Woods Moraines	Irregular, hilly, stagnation and end moraines 685 - 1198 ft.	Wis. loamy till; Ordovician, Cambrian, Cretaceous sandstone, shale, dolomite	Udolls, Aquolls, Udalfs, Aqualfs; Mesic, udic	27 29	43 45	145 150	Maple-Basswood Forest, White Oak-Red Oak-Bur Oak Forest	Many lakes and wetlands	Agriculture Forestry
222Mc Anoka Sand Plain	Flat plain 680 - 1234 ft.	Wis. sandy outwash- lake plain; Paleozoic dolomite, sandstone, shale	Udipsamments; Frigid, udic	26 29	42 44	136 156	Black Oak-Northern Pin Oak Barrens, Tamarack Swamp, Cordgrass Wet Prairie	Few lakes; poorly developed drainage networks	Agriculture Urban
222Md Rosemont Baldwin Plains and Moraines	Irregular plain, end moraine 680 - 1299 ft.	Wis. loess capped bedrock and till; Ordovician and Devonian dolomite	Hapludolls, Haplualfs, Argiudolls; Mesic, udic	28 30	42 44	146 156	Bur Oak Openings-Woodland, Maple-Basswood Forest, Big Bluestem-Indiangrass Prairie	Few lakes, fairly well developed drainage pattern	Agriculture Urban
222Me Oak Savannah Till and Loess Plains	Irregular plain, stepped erosion surfaces, local Karst; 797-1440 ft.	Wis. loess-eolian sand, Pre-Ill. clay loam till alluvium; Paleozoic limestone-dolomite	Hapludolls, Haplaquolls; Mesic, udic	29 31	44 46	146 156	Bur Oak-Mixed Oak Open- ings-Woodlands, Big Blue- stem-Indiangrass Prairie, Maple-Basswood Forest	Low gradient streams, few lakes	Agriculture

222N LAKE MODIFIED TILL SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
222Na Aspen Parklands	Level glacial lake plain, dunes, beach ridges; 860-1313 ft.	Wis. lake loam-silt- sand-gravel, loamy till; Ord. dolomite- sed., pC granite-vol.	Haplaquolls, Calcicquolls; Frigid, udic	19 23	37 40	120	Aspen Parkland, Dogwood- Willow Swamp, Sedge Meadow, Big Bluestem- Indiangrass Prairie	Undeveloped drainage networks; flooding common; lakes rare	Agriculture

222O MOHAWK AND BLACK RIVER VALLEY SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
222Oa Mohawk Valley	U-shaped valley, ground moraine, lake plain; 500-1200 ft.	Late Wis. loamy-clayey till, beach-dune sand, lake sand-gravel; Ordovician shale	Hapludalfs, Ochra- qualfs, Dystrochrepts Mesic, udic	47	44	140	Oak-Hickory-Ash Dry Forest Northern Hardwoods, Pine- Heath Woodland, N. White Cedar Forest	Mohawk River, Great Scandaga Lake, streams, wetlands	Agriculture Urban

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

2220 MOHAWK AND BLACK RIVER VALLEY SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
2220b Black River Valley	Broad valley, es- carpments, ground moraine; 800-1400 ft.	L. Wis. loamy till, coarse outwash-lake deposits, Holocene al- luvium;Paleo.limestone	Haplorthods, Eutro- chrept, Ochraqualf, Haplaquept; Frigid- Mesic, udic	48	44	140	Oak-Hickory-Ash Dry Forest Northern Hardwoods, N. White Cedar Forest	Black River, streams,	Agriculture Forestry

222P LAKE ONTARIO SECTION

222Pa Lake Ontario Bays & Islands	Lake plain-glacial ice scour/island- till	Lake clay and silt; Discontinuous lake silt and clay over bedrock (islands)		28	34				Navigation Fishery Recreation
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222Q LAKE ERIE SECTION

222Qa Lake Erie, Bays, & Islands	Lake plain-glacial ice scour/island till	Lake clay and silt; Lake clay-silt and gravel		28	34				Navigation Fishery Recreation
222Qb Lake St. Clair	Lake plain-glacial ice scour	Lake clay-silt-sand and gravel		28	34				Navigation Fishery Recreation

M222A BOSTON MOUNTAINS SECTION

M222Aa Boston Mountains	Low mountains; 1000-3000 ft.	Holocene sandstone and shale-clast loamy colluvium	Hapludalts, Paleudults; Thermic, udic	45 52	57 63	180 205	S. Red Oak - White Oak (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA	Perennial streams few to common	Forestry Recreation
M222Ab Boston Hills	High hills; 500-1000 ft.	Holocene sandstone, shale-clast loamy colluvium	Hapludults, Paleudults; Thermic, udic	45 52	57 63	180 205	White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA	Perennial streams few to common	Forestry Recreation

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

231A SOUTHERN APPALACHIAN PIEDMONT SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
231Aa Midland Plateau Central Uplands	Irregular plains; 100-300 ft.	Quaternary, Cenozoic micaceous, clayey, sandy saprolite; un- differentiated; silty to clayey sandy and micaceous saprolite	Kanhapludults, Rhodudults; Thermic, udic	45 55	57 64	205 235	Chestnut Oak - Oak (White, S. Red, Black) - Hickory (Mockernut, Pignut) FA, White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA	Intermittent and perennial streams few to common	Agriculture Urban Forestry
231Ab Piedmont Ridge	Tablelands of moderate relief; 300-500 ft.	Quaternary, Cenozoic micaceous and silty to clayey sandy saprolite	Kanhapludults, Rho- dudults, Udifluvents; Thermic, udic	45 55	57 64	205 235	Chestnut Oak - Oak (White, S. Red, Black) - Hickory (Mockernut, Pignut) FA	Intermittent and perennial streams few	Agriculture Forestry
231Ac Schist Plains	Tablelands with moderate relief; 300-500 ft.	Quaternary, Cenozoic micaceous saprolite; micaceous clayey and sandy saprolite, undifferentiated	Kanhapludults, Rhodudults; Thermic, udic	45 55	57 64	205 235	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA	Intermittent and perennial streams few to common	Agriculture Forestry
231Ad Lower Foot Hills	Open high hills; 500-1000 ft.	Quaternary, Tertiary clayey saprolite, mi- caceous saprolite, silty to clayey sand saprolite, rock tors, joint block boulders	Kanhapludults; Thermic, udic	40 55	50 64	150 235	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, Chestnut Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA	Intermittent and perennial streams few to common	Agriculture Forestry
231Ae Charlotte Belt	Irregular plains; 100-300 ft.	Quaternary, Tertiary silty to clayey sandy saprolite, undiffer- entiated, micaceous saprolite	Kanhapludults, Hapludults; Thermic, udic	45 55	57 64	205 235	White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut FA, Pine (Short- leaf, Loblolly, Virginia) - Oak (White, N. Red) - Yellow-poplar FA	Intermittent and perennial streams few to common	Forestry Agriculture
231Af Carolina Slate	Irregular plains; 100-300 ft.	Quaternary, Tertiary silty to clayey sap- rolite	Kanhapludults, Hapludults; Thermic, udic	45 55	57 64	205 235	White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut FA, Pine (Short- leaf, Loblolly Virginia) - Oak (White, N. Red) - Yellow-poplar FA	Intermittent and perennial streams few to common	Forestry
231Ag Schist Hills	Open high hills; 500-1000 ft.	Quaternary, Tertiary micaceous, clayey, and sandy saprolite; undifferentiated, micaceous saprolite	Hapludults; Thermic, udic	40 50	50 61	150 220	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, Chestnut Oak - N. Red Oak - Hickory (Mockernut, Pignut, Shagbark) FA	Intermittent and perennial streams few to common	Forestry

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

231A SOUTHERN APPALACHIAN PIEDMONT SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
231Ah Granite Hills	Open hills; 300-500 ft.	Quaternary, Cenozoic silty to clayey sandy saprolite, rock tors and joint block boulders	Hapludults, Kanhapludults; Thermic, udic	45 55	57 64	205 235	White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA, Pine (Short- leaf, Loblolly, Virginia) - Oak (White, N. Red) - Yellow-poplar FA	Intermittent and perennial streams few	Forestry
231Ai Opelika Plateau	Irregular plains; 100-300 ft.	Quaternary, Cenozoic argillaceous sapro- lite; silty to clayey sandy saprolite rock tors, block boulders	Rhodudults, Kanhapludults; Thermic, udic	45 55	57 64	205 235	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, Shortleaf Pine - Oak (White S. Red, Post, Black) FA	Intermittent and perennial streams few to common	Forestry
231Aj Mica Rich Plateau	Irregular plains; 100-300 ft.	Quaternary, Tertiary micaceous clayey and sandy saprolite, ar- gillaceous saprolite, silty to clayey sandy saprolite, rock tors	Kanhapludults, small area of Rhodudults; Thermic, udic	45 55	57 64	205 235	Chestnut Oak - Oak (White, S. Red, Black) - Hickory (Mockernut, Pignut) FA, White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA	Intermittent and perennial streams few to common	Forestry
231Ak Lynchburg Belt	Irregular plains; 100-300 ft.	Quaternary, Tertiary silty to clayey saprolite	Kanhapludults, Hapludults; Thermic, udic	45 55	57 64	205 235	White Oak - Oak (Scarlet, Black, N. Red) - Hickory (Mockernut, Pignut, Shag- bark) FA, White Oak - N. Red Oak - Hickory (Shag- bark, Pignut, Mockernut) FA	Intermittent and perennial streams common	Forestry Agriculture
231Al Northern Piedmont	Plains with high hills; 500-1000 ft.	Quaternary, Tertiary sandy clay saprolite; red, clay to silty clay saprolite	Hapludults, Dystrochrepts; Mesic, udic	35 45	50 57	160 200	White Oak - Oak (Scarlet, Black, N. Red) - Hickory (Mockernut, Pignut, Shag- bark) FA, White Oak - N. Red Oak - Hickory (Shag- bark, Pignut, Mockernut) FA	Intermittent and perennial streams common	Forestry Agriculture
231Am Triassic Uplands	Irregular plains; 100-300 ft.	Quaternary, Tertiary sandy clayey saproli- tized gravel; mica- cous saprolite, silty to clayey sandy saprolite	Hapludalts, Hapludults; Mesic, thermic, udic	45 55	57 64	205 235	White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA, Pine (Short- leaf, Loblolly, Virginia) - Oak (White, N. Red) - Yellow-poplar FA	Intermittent and perennial streams few	Forestry Agriculture
231An W. Coastal Plain-Piedmont Transition	Irregular plains; 100-300 ft.	Quaternary, Tertiary sand and clay decom- position residuum, silty to clayey sandy saprolite	Kanhapludults, Hapludults; Thermic, udic	40 60	61 68	200 280	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, Shortleaf Pine - Oak (White S. Red, Post, Black) FA	Intermittent and perennial streams	Forestry

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

231A SOUTHERN APPALACHIAN PIEDMONT SECTION (con')

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
231Ao Southern Triassic Uplands	Irregular plains; 100-300 ft.	Quaternary red silty sand to silty clay de- composition residuum, silty to clayey sandy saprolite, rock tors	Hapludults; Thermic, udic	45 55	57 64	205 235	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, Shortleaf Pine - Oak (White S. Red, Post, Black) FA	Intermittent and perennial streams few to common	Forestry Agriculture
231Ap Triassic Basins	Tablelands; 300-500 ft.	Quaternary red silty clay decomposition residuum, clayey sap- rolite, rock tors	Hapludults, Hapludalfs, Dystrochrepts; Mesic, udic	45 50	50 57	160 200	White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA, Post Oak - Blackjack Oak FA	Intermittent and perennial streams few	Agriculture

231B COASTAL PLAIN MIDDLE SECTION

231Ba Black Belt	Open low hills; 100-300 ft.	Quaternary, Cenozoic dark-gray clay solution residuum	Hapludults, Eutrochrepts; Thermic, udic	48 56	61 64	220 260	E. Redcedar - Little Blue- stem SWA, Post Oak - Black- jack Oak FA	Intermittent and perennial streams few to common	Forestry
231Bb Interior Flatwoods	Irregular plains; 100-300 ft.	Quaternary, Cenozoic massive clay decompo- sition residuum	Paleudults, Eutrochrepts, Udorthets; Thermic, udic	48 56	61 64	220 260	S. Red Oak - White Oak (Post Oak) Hickory (Pignut, Mockernut, Sand) FA, Short- leaf Pine - Oak (White, S. Red, Post, Black) FA	Few perennial and intermittent streams	Forestry
231Bc Upper Clay Hills	Irregular plains; 100-300 ft.	Quaternary, Cenozoic sand decomposition re- siduum; clayey sand and limonitic sandy decomposition residuum	Hapludults, Paleudults; Thermic, udic	40 60	61 68	200 280	S. Red Oak - White Oak (Post Oak) Hickory (Pignut, Mockernut, Sand) FA, Short- leaf Pine - Oak (White, S. Red, Post, Black) FA	Perennial streams few to common	Forestry
231Bd Upper Loam Hills	Open hills; 300-500 ft.	Quaternary, Cenozoic sand and chert-gravel sand decomposition residuum	Hapludults; Thermic, udic	40 60	61 68	200 280	Post Oak - Blackjack Oak FA, S. Red Oak - White Oak- (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA	Intermittent and perennial streams few	Forestry
231Be Transition Loam Hills	Open hills; 300-500 ft.	Quaternary, Cenozoic chert gravel and sand decomposition resid- uum, plastic-clay sol- ution residuum	Paleudults; Thermic, udic	40 60	61 68	200 280	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, Loblolly Pine - Oak (White, S. Red, Post) FA	Intermittent and perennial streams few to common	Agriculture
231Bf Floodplains and Terraces	Irregular plains; 100-300 ft.	Holocene alluvial gravely sand	Fluvaquents, Hapludults; Thermic, aquic	48 56	61 64	220 260	Overcup Oak - Sweetgum FA, Green Ash - (American Elm)- Hackberry (Hackberry, Sugarberry) FA		Forestry

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

231B COASTAL PLAIN MIDDLE SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
231Bg Northern Loessial Hills	Irregular plains; 100-300 ft.	Quaternary clayey fine to medium sand decom- position residuum	Hapludults, Paleudalfs; Thermic, udic	40 60	61 68	200 260	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA	Intermittent streams common, perennial few	Forestry
231Bh Deep Loess Hills and Bluffs	Irregular plains; 100-300 ft.	Quaternary, Cenozoic limonitic sandy decom- position residuum; colluvial loess	Hapludalfs, Fragiudalfs; Thermic, udic	45 60	61 68	200 280	White Oak - Mockernut Hic- kory - (Pignut Hickory) FA, Oak (Overcup, Texas) - Water Hickory FA	Intermittent streams common, perennial few	Forestry
231Bi Deep Loess Plains	Flat plains; 0-100 ft.	Quaternary, Cenozoic limonitic sandy and smectitic clay decom- position residuum	Fragiudalfs; Thermic, udic	45 60	61 68	200 280	Shortleaf Pine - Oak (White S. Red, Post, Black) FA, Loblolly Pine - Oak (White, S. Red, Post) FA	Intermittent streams common, perennial few	Forestry Agriculture
231Bj Jackson Hills	Open low hills; 100-300 ft.	Quaternary, Cenozoic smectitic clay decom- position residuum	Paleuderts, Hapludalfs; Thermic, udic	48 56	61 64	200 280	Shortleaf Pine - Oak (White S. Red, Post, Black) FA, S. Red Oak - White Oak - (Post Oak) - Black Hickory FA, *Post Oak - Blackjack Oak SWA	Intermittent and perennial streams few	Forestry
231Bk Southern Pontotoc Ridge	Irregular plains; 100-300 ft.	Quaternary, Cenozoic dark-gray clay solution residuum	Hapludults, Paleudults; Thermic, udic	48 56	61 64	220 260	White Oak - Oak (Scarlet, Black, N. Red) - Hickory (Mockernut, Pignut, Shagbark) FA	Intermittent and perennial streams few	Forestry
231Bl Jackson Prairie	Irregular plains; 100-300 ft.	Smectitic clay decomposition residuum	Hapludalfs, Fragiudalfs Thermic, udic	48 56	61 64	220 260	White Oak - Mockernut Hickory - (Pignut Hickory) FA, E. Red Cedar-Little Bluestem SWA	Intermittent and perennial streams few to common	Agriculture Forestry

231C SOUTHERN CUMBERLAND PLATEAU SECTION

231Ca Shale Hills and Mountain	Open hills; 300-500 ft.	Quaternary, Cenozoic sandy decomposition residuum	Dystrochrepts, Hapludults; Thermic, udic	51 55	61 65	200 210	White Oak - Oak (Scarlet, Black, N. Red) - Hickory (Mockernut, Pignut, Shag- bark) FA, White Oak - N Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA	Intermittent and perennial streams common	Forestry
231Cb Sandstone Plateau	Open hills; 300-500 ft.	Quaternary, Cenozoic sandy decomposition residuum	Hapludults, Dystrochrepts; Thermic, udic	51 55	61 63	200 210	White Oak - Oak (Scarlet, Black, N. Red) - Hickory (Mockernut, Pignut, Shag- bark) FA, White Oak - N Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA	Intermittent and perennial streams common	Forestry

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

231C SOUTHERN CUMBERLAND PLATEAU SECTION (com't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
231Cc Table Plateau	Tablelands with considerable re- lief; 500-1000 ft.	Quaternary, Cenozoic sandy decomposition residuum	Hapludults, Paleudults; Thermic, udic	36 55	55 61	170 210	White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA. E. Redcedar FA	Intermittent and perennial streams few	Forestry
231Cd Sandstone Mountain	Tablelands and irregular plains; 500-1000 ft.	Quaternary plastic clay solution residuum with colluvial chert, cherty clay solution residuum	Dystrochrepts, Hapludults; Thermic, udic	51 55	61 63	200 210	Chestnut Oak - Scarlet Oak - (Black Oak) FA, White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA	Intermittent and perennial streams few	Forestry
231Ce Moulton Valley	Irregular plains; 100-300 ft.	Chert fragment solution residuum	Paleudults, Thermic, udic	36 55	55 62	170 210	Chestnut Oak - Scarlet Oak - (Black Oak) FA Oak (Swamp Chestnut - Cherrybark - Shumard) FA	Intermittent and perennial streams and small rivers	Agriculture
231Cf Southern Cumberland Valley	Tablelands, escarp- ment and valley sides; 500-1000 ft.	Quaternary, Tertiary cherty clay solution residuum	Paleudults, Dystrochrepts; Thermic, udic	51 55	61 63	200 210	White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA, E. Redcedar FA	Tributaries of Willie Creek	Agriculture
231Cg Sequatchie Valley	Open hills, escarp- ment and valley sides; 300-500 ft.	Quaternary plastic clay solution residuum with colluvial chert	Paleudults, Hapludalts; Thermic, udic	51 55	61 63	200 210	Chestnut Oak - Oak (White, S. Red, Black) - Hickory (Mockernut, Pignut) FA, Oak (Swamp Chestnut, Cherry- bark, Shumard) FA	Intermittent and perennial streams few	Agriculture Forestry

231D SOUTHERN RIDGE AND VALLEY SECTION

231Da Chert Valley	Plains with hills, 300-500 ft.	Cenozoic, Quaternary cherty clay and cherty silty clay solution residuum	Paleudults; Thermic, udic	36 55	55 61	170 210	Chestnut Oak - Oak (White, S. Red, Black) - Hickory (Mockernut, Pignut) FA	Intermittent and perennial streams common	Forestry Agriculture
231Db Sandstone, Shale and Chert Ridge	Plains and hills; 300-500 ft.	Cenozoic, Quaternary sandy to clayey sand and sandy clay solu- tion residuum, and cherty clay solution residuum	Dystrochrepts, Paleudults; Thermic, udic	36 55	55 61	170 210	Chestnut Oak - Oak (White, S. Red, Black) - Hickory (Mockernut, Pignut) FA, White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA	Intermittent and perennial streams few	Forestry Forestry
231Dc Sandstone Ridge	Plains with hills; 300-500 ft.	Cenozoic, Quaternary sandy decomposition residuum	Dystrochrepts; Thermic, udic	51 55	52 61	200 210	Chestnut Oak - Oak (White, S. Red, Black) - Hickory (Mockernut, Pignut) FA, Longleaf Pine - Shortleaf	Intermittent and perennial streams few	Forestry

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

231D SOUTHERN RIDGE AND VALLEY SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
							Pine - Loblolly Pine - Oak (Post, S. Red) FA		
231Dd Quartzite and Talladega Slate Ridge	Open high hills; 500-1000 ft.	Cenozoic, Quaternary micaceous saprolite; micaceous, clayey and sandy saprolite undif- ferentiated	Hapludults; Thermic, udic	36 55	55 61	170 210	Chestnut Oak - Oak (White, S. Red, Black) - Hickory (Mockernut, Pignut) FA	Intermittent and perennial streams few	Forestry
231De Shaley Limestone Valley	Plains with hills; 300-500 ft.	Cenozoic, Quaternary cherty clay solution residuum; clayey sand to sandy clay solu- tion resicum	Paleudults; Thermic, udic	36 55	55 61	170 210	White Oak - Oak (Scarlet, Black, N. Red) - Hickory (Mockernut, Pignut, Shag- bark) FA, White Oak - N. Red Oak - Hickory (Shagbark Pignut, Mockernut) FA, Longleaf Pine - Shortleaf Pine - Loblolly Pine - Oak (Post, S. Red) FA	Intermittent and perennial streams few to common	Agriculture

231E MIDDLE COASTAL PLAINS, WESTERN SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
231Ea South Central Arkansas	Irregular plains; 100-300 ft.	Quaternary, Tertiary limonitic sandy clas- tic residuum, clayey, fine to medium sand and fine sandy clay residuum	Hapludults, Glossaqualfs, Fragiudults; Thermic, udic	40 49	61 68	200 270	Shortleaf Pine - Oak (White, S. Red, Post, Black) FA, S. Red Oak - White Oak - (Post Oak) - Hickory (Pignut, Mocker- nut, Sand) FA	Perennial streams common, few lakes and wetlands	Agriculture Forestry
231Eb Southwestern Arkansas	Smooth plains; 100-300 ft.	Quaternary, Tertiary alluvial delta sand, silt and clay; limon- itic sandy decompo- sition residuum; allu- vial clay, silt, sand	Hapludults, Fragiudults; Thermic, udic	40 53	61 68	200 270	Shortleaf Pine - Oak (White, S. Red, Post, Black) FA, S. Red Oak - White Oak - (Post Oak) - Hickory (Pignut, Mocker- nut, Sand) FA	Small and medium perennial streams common	Agriculture Forestry
231Ec Ouachita Alluvial Valleys	Flat plains; 0-100 ft.	Holocene alluvial sand, silt, clay, and gravel	Glossaqualfs, Dystrochrepts; Thermic, aquic	40 53	61 68	200 270	Willow Oak - (Overcup Oak) FA, Oak (Swamp Chestnut, Cherrybark, Shumard) - Sweetgum FA	Ouachita River and tributaries, wet- lands common	Agriculture Forestry

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

231E MIDDLE COASTAL PLAINS, WESTERN SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
231Ed Sabine Alluvial Valley	Flat plains; 0-100 ft.	Quaternary, Tertiary clayey sand decompo- sition residuum	Fluvaquents, Udifulvents; Thermic, udic, aquic	40 53	61 68	200 270	Green Ash - (American Elm) - Hackberry (Hackberry, Sugarberry) FA	Many medium to large perennial streams	Agriculture Forestry
231Ee Southern Oklahoma	Irregular plains; 100-300 ft.	Middle pleistocene fine sandy-silty clay decomposition residuum	PaleudalFs, HapludalFs; Thermic, udic	40 53	61 68	200 270	Shortleaf Pine - Oak (White - S. Red-Post- Black) FA, Loblolly Pine -Oak (White-S. Red-Post) FA	Medium perennial streams common	Agriculture Forestry
231Ef Piney Woods Transition	Irregular plains; 100-300 ft.	Quaternary, Tertiary massive clay decompo- sition residuum; limo- nitic sandy decompo- sition residuum	PaleudalFs; Thermic, udic	40 53	61 68	200 270	Shortleaf Pine - Oak (White, S. Red, Post, Black) FA, Loblolly Pine - Oak (White, S. Red, Post) FA	Perennial streams few to common	Agriculture Forestry
231Eg Sandhills	Irregular plains; 100-300 ft.	Quaternary, Tertiary quartz sand decompo- sition residuum; limo- nitic sandy decompo- sition residuum	PaleudulFs, HapludulFs, KandiudulFs; Thermic, udic	40 53	61 68	200 270	Shortleaf Pine - Oak (White, S. Red, Post, Black) FA, Loblolly Pine - Oak (White, S. Red, Post) FA	Medium perennial streams common	Agriculture Forestry
231Eh Southern Loam Hills	Irregular plains; 100-300 ft.	Pleistocene alluvial pebble, gravel, and sand; Quaternary, Ter- tiary massive clay de- composition residuum	PaleudalFs; Thermic, udic	40 53	61 68	200 270	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, White Oak - Mockernut Hic- kory - (Pignut Hickory) FA	Medium perennial streams common	Agriculture Forestry
231Ei Southwest Flatwoods	Irregular plains; 100-300 ft.	Pleistocene alluvial and colluvial sand, silt, gravel, and clay	PaleudalFs, Fragi- udalFs, OchraqualFs; Thermic, udic, aquic	40 53	61 68	200 270	Loblolly Pine - Oak (Cher- rybark, Basket, Shumard) FA, Loblolly Pine - Oak (White, S. Red, Post) FA	Perennial streams few, wetlands extensive	Forestry

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

231E MIDDLE COASTAL PLAINS, WESTERN SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
231Ej South Central Arkansas Flatwoods	Irregular plains; 100-300 ft.	Quaternary, Tertiary quartz sand decompo- sition residuum; limo- nitic sandy decompo- sition residuum	Ochraquults, Paleaquults, Glossaquults; Thermic, aquic	40 53	61 68	200 270	Loblolly Pine - Oak (White, S. Red, Post) FA, S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA	Perennial streams common, wetlands extensive	Agriculture Forestry
231Ek Southwestern Arkansas Blackland Prairie	Irregular plains; 100-300 ft.	Quaternary, Tertiary fine to medium sand and fine sandy clay decomposition residuum	Hapludalfs, Eutrochrepts; Thermic, udic	48 56	61 64	220 260	W. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, E. Redcedar - Oak (Post, Black, Blackjack) FA	Perennial streams few to common	Agriculture Forestry
231El Trinity Alluvial Valley	Flat plains; 100-300 ft.	Holocene alluvial sand, silt, clay and gravel	Haplaquolls, Haplaquepts; Thermic, aquic	40 53	61 68	200 270	Green Ash - (American Elm)- Hackberry (Hackberry, Su- garberry) FA, Oak (Willow, Water, Laurel) - Sweetgum FA	Trinity River and tributaries	Agriculture
231Em Red River Alluvial Plain	Irregular plains; 100-300 ft.	Sand-gravel-silt and clay decomposition residuum	Paleudalfs, Eutrochrepts, Udifluvents; Thermic, Udic and Aquic	40 53	61 68	200 270	(Basket, Cherrybark, Shumard) - Sweetgum FA, Green Ash - (American Elm)- Hackberry (Hackberry, Sug- arberry) FA	Red River and tributaries	Fishery Agriculture Forestry
231En East Texas Timberlands/ Cross Timbers	Irregular plains; 100-300 ft.	Quaternary, Tertiary Quartz sand decom- position residuum, limonitic sandy decomposition residuum	Paleudalfs; Thermic, udic	40 53	61 68	200 270	Shortleaf Pine - Oak (White-S. Red-Post-Black) FA, Loblolly Pine - Oak (White-S. Red-Post) FA	Reserved	Agriculture

231F EASTERN GULF PRAIRIES AND MARSHES SECTION

231Fa Gulf Coast Prairies	Flat plains; 0-165 ft.	Late Pleistocene delta silt, clay, and gravel	Pelluderts, Argiaquolls, Albaquults; Thermic, aquic	24 55	68 70	280 320	Live Oak - Post Oak Wood- land Alliance, Little Bluestem - Indian-grass Herbaceous Alliance	Perennial streams common, extensive wetlands	Agriculture
231Fb Marshes and Inland Bays	Flat plains - marshes and embayed estuaries 0-16 ft.	Holocene freshwater, brackish, and saline marsh silt and clay	Haplaquolls, Fluva- quents, Udipsamments; Thermic, aquic	29 55	70 73	250 320	Saltmarsh Cordgrass Herba- ceous Alliance, Salt Grass Herbaceous Alliance	Perennial streams common, extensive wetlands	Agriculture Forestry

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

231G ARKANSAS VALLEY SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
231Ga Eastern Arkansas Valley and Ridges	Plains with hills; 300-500 ft.	Quaternary, Tertiary sandy decomposition residuum; Holocene alluvial sand, silt.	Hapludults, Paleudults; Udifulvents; Thermic, udic	44 50	61 63	200 240	White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA, Shortleaf Pine, Oak (White, S. Red, Black) FA	Perennial streams common, Arkansas River and tribu- taries	Agriculture
231Gb Mount Magazine	Plains with low mountains; 1000-3000 ft.	Holocene, Wisconsin sandstone, shale clast loamy colluvium; Quat- ernary, Tertiary sandy decomposition residuum	Fragiudults, Hapludults, Paleudults; Reserved	44 50	61 63	200 240	White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA, Shortleaf Pine - Oak (White, S. Red, Black) FA	Perennial streams few to common, few wetlands	Forestry Recreation
231Gc Western Arkansas Valley and Ridges	Plains with hills; 300-500 ft.	Quaternary, Tertiary sandy decomposition residuum; Holocene alluvial sand, silt, clay, gravel	Paleudalts, Glossaqualfs, Fragiudults, Udifulvents; Thermic, udic	44 50	61 63	200 240	White Oak - N. Red Oak - Hickory (Shagbark, Pignut, Mockernut) FA, Little Blue- stem - Yellow Indian-grass FA	Perennial streams few to common, few small wetlands	Forestry

M231A OUACHITA MOUNTAINS SECTION

M231Aa Fourche Mountains	Open low mountains; 1,000-3,000 ft.	Holocene, Wisconsin sandstone and shale- clast loamy colluvium	Hapludults, Dystrochrepts; Thermic, udic	48 56	61 63	200 240	Shortleaf Pine -Oak (White, S. Red, Post, Black) FA, S. Red Oak - White Oak - (Post Oak) - Black Hickory FA	Perennial streams common, Fourche River	Forestry
M231Ab West Central Ouachita Mountains	Open high hills; 500-1,000 ft.	Holocene, Wisconsin acid shale-chip clay- loam colluvium	Hapludults, Dystrochrepts; Thermic, udic	48 56	61 63	200 240	Shortleaf Pine -Oak (White, S. Red, Post, Black) FA, S. Red Oak - White Oak - (Post Oak) - Black Hickory FA	Perennial streams common, Ouachita River	Forestry
M231Ac East Central Ouachita Mountains	Open high hills; 500-1,000 ft.	Holocene, Wisconsin chert fragment collu- vium, Quartzite boul- der colluvium	Hapludults, Dystrochrepts; Thermic, udic	48 56	61 63	200 240	Shortleaf Pine -Oak (White, S. Red, Post, Black) FA, S. Red Oak - White Oak - (Post Oak) - Black Hickory FA	Perennial steams common, few small wetlands, Ouachita River	Forestry
M231Ad Athens Piedmont Plateau	Open high hills; 500-1,000 ft.	Holocene, Wisconsin acid chip clay-loam colluvium; bouldery sandy colluvium	Hapludults, Dystrochrepts; Thermic, udic	48 56	61 63	200 240	Shortleaf Pine -Oak (White, S. Red, Post, Black) FA, S. Red Oak - White Oak - (Post Oak) - Black History FA	Perennial streams common, very few wetlands	Forestry

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

232A MIDDLE ATLANTIC COASTAL PLAIN SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
232Aa Long Island Coastal Lowland and Moraine	Coastl plain, re- worked end-ground moraine, kames; 0-400 feet	Wis. outwash-ice con- tact gravel-sand-silt, sandy-clayey till; Quat. dune-sedimentary	Dystrochrepts, Udorthents; Mesic, udic	45	52	201	Hemlock-White Pine Forest, Pine Dry Forest, Maritime Dune Complexes	Few streams & lakes; coastal inlets & bays	Urban Residential Agriculture Forest
232Ab New Jersey Outer Coastal Plain	Low hills, broad valleys on a gently slopping coastal plain; 0-250 ft.	Unconsolidated Tert- iary sand-silt-clay; Marine estuarine sedi- ments	Hapludults, Quatz- ipsammants, Sulfaqu- ants; Aquic, Mesic, udic	40 46	51 54	180 225	Virginia Pine-So. Red Oak Forest, Atlantic White Ce- dar & Red Maple-Sweet Gum Swamps, Freshwater Tidal	Long sluggish streams in broad valleys, swamps, marshes, tidal cr	Forestry Agriculture Residential
232Ac New Jersey Inner Coastal Plain	Terraced lowlands rising to crest- like hills; 0-390 ft.	Unconsolidated mixture Cretaceaus sand-silt- clay-gravel, glacio- fluvial deposits	Hapludults, Quatz- ipsammants, Sulfaqu- ants; Mesic, udic	42 46	53 54	193 195	Oak-Beech-Holly Coastal Plain Forest, Red Maple- Sweet Gum Swamp, Freshwa- ter Tidal & Salt Marshes	Small streams, swamps, tidal creeks	Agriculture Urban Residential
232Ad Western Chesapeake Uplands	Well dissected, plain, fringed by low flat plain; 0-300 ft.	Loamy-sandy clay- clayey sand decompo- sition residuum;	Hapludults, Frag- iudults, Ochraqults; Mesic, udic, aquic	42 47	55	185 220	Virginia Pine-Southern Red Oak Forest, Cypress- Tupelo Swamp, Maritime Dune Complexes	Estuaries, beaches, low gradient streams	Agriculture Urban Recreation
232Ae Delaware Bay	Large embayed estuary with tidal inlet	Reserved	Reserved	Res.	Res.	Res.	Reserved	Reserved	Reserved
232Af Long Island Sound	Sound proglacial lake plain	Glaciofluvial deposits -sandy to clay	Reserved	Res.	Res.	Res.	Reserved	Reserved	Reserved

232B COASTAL PLAINS AND FLATWOODS, LOWER SECTION

232Ba Fragipan Loam Hills	Irregular plains; 100-300 ft.	Pliocene-Pleistocene sandy clay decompo- sition residuum; allu- vial pebble gravel and sand	Paleudults, Fragiudults; Thermic, udic	40 60	61 68	200 280	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, Loblolly Pine - Oak (White, S. Red, Post) FA	Intermittent and perennial streams common	Forestry
232Bb Southern Loessial Plains	Irregular plains; 100-300 ft.	Pliocene-Pleistocene sandy clay decompo- sition residuum; allu- vial pebble gravel and sand	Fragiudults, Cryumbrepts; Thermic, udic	45 60	61 68	200 280	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, Loblolly Pine - Oak (White, S. Red, Post) FA	Intermittent and perennial streams common	Forestry
232Bc Cintronelle Plains	Irregular plains; 100-300 ft.	Pliocene-Pleistocene sandy clay decompo- sition residuum; allu- vial pebble gravel	Paleudults; Thermic, udic	40 60	61 68	200 280	Longleaf Pine (Wetland) WA, Water Tupelo - (Bald- cypress) FA	Intermittent and perennial streams common to many	Forestry

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

232B COASTAL PLAINS AND FLATWOODS, LOWER SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
232Bd Southern Deep Loess Hills and Bluffs	Irregular plains; 100-300 ft.	Limonitic sandy decom- position residuum; Colluvial and alluvial loess	Hapludalfs, Fragiudalfs Thermic, udic	40 60	61 68	200 280	White Oak - Mockernut Hickory - (Pignut Hickory) FA	Intermittent and perennial streams common to many	Forestry
232Be Florida Northern Highlands	Flat plains; 0-100 ft.	Tertiary, Quaternary sandy carbonaceous clay and silty sand decomposition residuum	Paleudults; Thermic, udic	51 55	68 70	280 290	Longleaf Pine WA	Intermittent and perennial streams few to common	Forestry
232Bf Florida Central Highlands	Flat plains; 0-100 ft.	Pliocene, Pleistocene sand and clay decom- position residuum	Quatzipsamments, Paleudults; Hyperthermic, udic	50 55	70 73	290 350	Longleaf Pine WA, South Florida Slash Pine FA, *Sand Pine WA	Small lakes common to many	Orchards Urban
232Bg South Coastal Plains	Flat plains; 0-100 ft.	Pliocene, Pleistocene alluvial pebble gravel and sand	Quatzipsamments, Kandiudults; Thermic, udic	40 60	61 68	200 280	Longleaf Pine WA, South Florida Slash Pine - Longleaf Pine SWA	Intermittent and perennial streams common	Forestry
232Bh Gulf South- ern Loam Hills	Flat plains, much standing water; 0-100 ft.	Tertiary, Quaternary sand and clay decom- position residuum	Kandiudults; Thermic, udic	40 60	61 68	200 280	Oak (Willow, Water, Laurel) - Sweetgum FA, S. Red Oak - White Oak - (Post Oak) - Hickory (Pignut, Mockernut, Sand) FA	Intermittent and perennial streams common	Forestry
232Bi The Plains	Irregular plains; 100-300 ft.	Tertiary, Quaternary clayey sand and clay- ey sand solution re- siduum	Kandiudults; Thermic, udic	40 60	70 73	200 280	South Florida Slash Pine WA, S. Red Oak - White Oak- (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA	Intermittent and perennial streams few to common	Forestry
232Bj Southern Loam Hills	Irregular plains; 100-300 ft.	Tertiary, Quaternary alluvial pebble gravel and sand	Kandiudults; Thermic, udic	40 60	61 68	200 280	Longleaf Pine WA	Intermittent and perennial streams many	Forestry Agriculture
232Bk Southern Clay Hills	Irregular plains; 100-300 ft.	Tertiary, Quaternary sandy clay decompo- sition residuum	Fragiudults, Kandiudults; Thermic, udic	40 62	61 68	200 280	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, Longleaf Pine - Shortleaf Pine - (Loblolly Pine) - Oak (Post, S. Red) FA	Intermittent and perennial streams common	Forestry Agriculture
232Bl Lower Loam and Clay Hills	Open hills; 300-500 ft.	Tertiary, Quaternary clayey sand, sandy clay and siliceous clay decomposition re- siduum	Hapludults, Paleudults, Kandiudults; Thermic, udic	40 60	61 68	200 280	White Oak - Mockernut Hic- kory - (Pignut Hickory) FA, S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA	Intermittent and perennial streams common	Forestry Agriculture

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

232B COASTAL PLAINS AND FLATWOODS, LOWER SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
232Bm Lower Clay Hills	Irregular plains; 100-300 ft.	Tertiary, Quaternary silty sand and clayey sand to sandy clay decomposition residuum	Paleudults, Hapludults, Kandiuults; Thermic, udic	40 60	61 68	200 280	White Oak - Mockernut Hickory - (Pignut Hickory) FA, S. Red Oak - White Oak - (Post Oak) - Hickory (Pignut, Mockernut, Sand) FA	Intermittent and perennial streams few to common	Forestry Agriculture
232Bn Lower Loam Hills	Irregular plains; 100-300 ft.	Cenozoic, Quaternary clayey sand solution residuum with chert blocks; sand, sandy clay, clayey sand decomposition residuum	Kandiuults, Paleudults; Thermic, udic	40 60	61 68	200 280	Longleaf Pine - Shortleaf Pine - (Loblolly Pine) - Oak (Post, S. Red) FA, S. Red Oak - White Oak - (Post Oak) - Hickory (Pignut, Mockernut, Sand) FA	Intermittent and perennial streams common	Agriculture
232Bo Border Sand Hills	Irregular plains; 100-300 ft.	Tertiary, Quaternary limonitic sandy decomposition residuum, alluvial gravelly sand	Kandiuults, Hapludults; Thermic, udic	40 60	61 68	200 280	Longleaf Pine - Bluejack Oak WA, Shortleaf Pine - Oak (White, S. Red, Post, Black) FA	Intermittent and perennial streams common	Forestry
232Bp Wiregrass Plains	Flat plains, much standing water; 0-100 ft.	Tertiary, Quaternary clayey sand solution residuum with chert blocks	Kandiuults; Thermic, udic	40 60	61 68	200 280	S. Red Oak - White Oak - (Post Oak) - Hickory (Pignut, Mockernut, Sand) FA, Oak (Willow, Water, Laurel) Sweetgum FA	Intermittent and perennial streams few to common	Forestry
232Bq Sand Hills	Irregular plains; 100-300 ft.	Tertiary, Quaternary sand, clayey silt, and sand decomposition residuum	Kandiuults, Hapludults, Paleudults; Thermic, udic	45 50	63 64	220 280	Longleaf Pine WA Pond Pine FA	Intermittent and perennial streams few to common	Forestry
232Br Atlantic Southern Loam Hills	Smooth plains; 100-300 ft.	Tertiary, Quaternary sand and clay decomposition residuum, marine sand, silt, clay	Kandiuults; Thermic, udic	40 60	61 68	200 280	Longleaf Pine - Shortleaf Pine - (Loblolly Pine) - Oak (Post, S. Red) FA Longleaf Pine (Upland) WA	Intermittent and perennial streams common to many	Forestry
232Bs Floodplains and Terraces	Flat plains; 0-100 ft.	Holocene alluvial gravelly sand	Fluvaquents, Paleudults; Thermic, udic	40 60	61 68	200 280	Overcup Oak - Sweetgum FA, Water Tupelo - (Baldcypress) FA	Intermittent and perennial streams common to many	Agriculture Forestry Urban
232Bt Delmarva Uplands	Dissected upland, low flat plains, marine, estuarine; 0-100 ft.	Sandy decomposition residuum	Dystrochrepts, Ochraqults, Hapludults; Mesic, udic	44 56	55 56	172 208	Virginia Pine-So. Red Oak Forest, Oak-Beech-Holly Coastal Plain Forest, Atlantic White Cedar Swamp	Mature streams, w/ wide flood plains & meandering channels	Agriculture Forestry Urban

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

232B COASTAL PLAINS AND FLATWOODS, LOWER SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
232Bu Southwestern Loam Hills	Smooth plains; 100-300 ft.	Tertiary, Quaternary sand and clay, and sandy clay and clayey sand decomposition re- siduum	Kandiudults, Paleudults; Thermic, udic	40 60	61 68	200 280	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, Loblolly Pine - Oak (White, S. Red, Post) FA	Few Carolina bays	Agriculture
232Bv Northern Loam Plains	Irregular plains; 100-300 ft.	Tertiary, Quaternary sand and clay, and sandy clay and clayey sand decomposition re- siduum	Kandiudults, Paleudults; Thermic, udic	40 61	61 68	200 280	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, Loblolly Pine - Oak (White, S. Red, Post) FA	Common to many Carolina bays,	Agriculture
232Bx Eastern Chesapeake Lowland	Fluvial plain, marine, estuarine 0-40 ft	Alluvial-estuarine sand-silt, saline marsh deposits	Normudults, Ochraqults; Thermic, aquic	43	55 56	172 208	Oak-Beech-Holly Coastal Plain Forest, Loblolly Pine-Water Oak Forest, Maritime Dune Complexes	Tidal Marsh, estuaries, low gradient streams	Agriculture Forestry Recreation
232Bz Delmarva Outer Coastal Plain, Bays, and Islands	Fluvial plain, marine, estuarine 0-60 ft	Marine sand-silt-clay, beach-near shore mar- ine-dune sand, saline marsh deposits	Ochraqults; Thermic, aquic	45 49	55 56	186	Virginia Pine-Southern Red Oak Forest, Oak-Beech-Hol- ly Coastal Plain Forest, Maritime Dune Complexes	Beaches, estuaries, low gradient streams	Agriculture Urban Recreation

232C ATLANTIC COASTAL FLATWOODS SECTION

232Ca Upper Terraces	Flat plains; 0-100 ft.	Pleistocene marine silt, and clay, marine sand, beach marine sand deposits	Paleuquults, Haplaquods, Kandiudults; Thermic, aquic	40 55	55 70	200 280	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, Longleaf Pine WA	Carolina bays and perennial streams common	Fisheries Agriculture
232Cb Lower Terraces	Flat plains; 0-100 ft.	Pleistocene marine silt and clay; marine delta clay, silt, sand	Paleaquults, Ochraqults; Thermic, aquic	40 55	55 70	200 280	Water Tupelo - Baldcypress) FA Longleaf Pine WA	Carolina bays common	Urban Agriculture
232Cc Okefenokee Uplands	Flat plains; 0-100 ft.	Holocene alluvial sand	Haplaquods, Paleaquults; Thermic, aquic	40 55	55 70	200 280	Longleaf Pine WA	Carolina bays few	Forestry Agriculture
232Cd Okefenokee Swamp	Flat plains mostly water covered; 0-100 ft.	Holocene swamp deposits	Mediheimist, Humaquepts; Thermic, aquic	40 55	55 70	200 280	Pondcypress WA, Water Tu- pelo - (Baldcypress) WA, Titi SA, Spatterdock HA	Okefenokee Swamp, Extensive wetlands	Fisheries Agriculture
232Ce Coastal Marsh and Island	Flat plains with much standing water 0-100 ft.	Pleistocene, Holocene saline marsh deposits, beach marine sand	Sulfaquents, Quatzipsamments; Hyperthermic, aquic	40 55	55 70	200 280	Live Oak - (Titi) SA Sawgrass HA	Many bays and lagoons	Forestry Agriculture

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232C ATLANTIC COASTAL FLATWOODS SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
232Cf Bacon Terraces	Flat plains; 0-100 ft.	Pliocene alluvial sand	Paleaquults, Pale- udults, Kandiuults; Thermic, udic	40 55	55 70	200 280	Longleaf Pine WA, South Florida Slash Pine - Longleaf Pine SWA	Intermittent and perennial streams common	Forestry
232Cg Flatwoods Floodplains and Terraces	Flat plains; 0-100 ft.	Holocene alluvial gra- velly sand and alluv- ial silt and clay	Fluvaquents; Thermic, aquic	40 55	55 70	200 280	Water Tupelo - (Balduy- press) FA, Oak (Willow, Wa- ter, Laurel) - Sweetgum FA	Flood plains of large rivers	Forestry
232Ch Tidal Area	Flat plains; 0-100 ft.	Quaternary marine sand, silt, and clay	Ochraqults, Umbraquults; Thermic, aquic	45 50	55 75	200 300	Pond Pine - Atlantic White Cedar - Red Maple FA, Lob- lolly Bay - Pond Pine FA, Black Needle-rush HA	Rivers common	Recreation Agriculture
232Ci Pamlico and Albemarle Sounds and Barrier Islands	Large sounds and barrier islands; 0 ft.	Pleistocene alluvial and estuarine sand and silt	Hydraquents; Thermic, peraquic	45 50	55 75	200 300		Estuaries assoc- iated with large sounds	Fishery Recreation Navigation
232Cj Chesapeake Bay	Large embayed estuary with tidal inlet characteris- tics; 0 ft.	Pleistocene alluvial and estuarine sand and silt	Hydraquents; Thermic, peraquic	45 50	55 75	200 300		Estuaries assoc- iated with large bay	Fisheries Recreation Navigation

232D FLORIDA COASTAL LOWLANDS (WESTERN) SECTION

232Da Immokalee Rise	Flat plains; 0-100 ft.	Tertiary, Quaternary Calcareous sand solu- tion residuum, swamp deposits	Haplaquods, Glossaquults; Hyperthermic, aquic	50 55	70 73	290 350	South Florida Slash Pine (Upland) WA, Tracy's Beak- sedge HA, Cabbage Palmetto - Saw Palmetto WA	Rivers and peren- nial streams common	Forestry Agriculture
232Db Gulf Coastal Lowlands	Flat plains; 0-100 ft.	Pleistocene beach and marine sand and sandy clay	Haplaquods, Ochraqualfs; Hyperthermic, aquic	51 60	70 73	290 365	Longleaf Pine - Sand Pine WA, South Florida Slash Pine WA	Intermittent and perennial streams common to many	Agriculture Mining
232Dc Gulf Coast Flatwoods-Bays and Barrier Islands	Flat plains with embayed estuaries and barrier islands; 0-100 ft.	Holocene, Wisconsin sandy carbonaceous clay solution residuum	Haplaquods, Paleaquults; Thermic, aquic	52 64	66 70	270 290	South Florida Slash Pine - Longleaf Pine SWA, Longleaf Pine WA	Estuaries assoc- iated with many bays	Forestry
232Dd Mobile Bay, Sounds, and Islands	Large embayed estuary with tidal inlet-sounds barrier islands 0 ft.	Holocene alluvial delta loam	Hydraquents; Thermic, peraquic	52 64	66 70	270 290	Saltmarsh Cordgrass HA, Salt Grass (Tidal) HA	Estuaries assoc- iated with Mobile Bay	Fishery Navigation Recreation

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

232D FLORIDA COASTAL LOWLANDS (WESTERN) SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
232De Florida Gulf Coastal Bays and Islands	Medium embayed estuaries with tidal inlets-barriers islands; 0 ft.	Holocene alluvial delta loam	Hydraquents; Thermic, peraquic	51 60	70 73	290 365	Saltmarsh Cordgrass HA, Salt Grass (Tidal) HA	Tampa Bay, Charlotte Harbor and Pine Island Sounds	Fisheries Navigation Recreation

232E LOUISIANA COAST PRAIRIES AND MARSHES SECTION

232Ea Gulf Coast Prairies	Flat plains; 0-100 ft.	Late Pleistocene delta deposits	Albaqualfs, Medisaprists; Thermic, aquic	24 55	68 70	280 320	Live Oak - Post Oak WA, Little Bluestem - Indian-grass HA	Perennial streams common, extensive wetlands	Agriculture Undeveloped
232Eb Gulf Coast Marshes and Inland Bays	Flat plains-small embayed estuaries 0-100 ft.	Holocene saline-marsh deposit, freshwater marsh peat and clay	Medisaprists; Thermic, aquic	48 65	70	280 350	Saltmarsh Cordgrass HA, Salt Grass (Tidal) HA	Small lakes numerous, extensive wetlands	Fisheries Agriculture
232Ec Lake Ponchartrain	Lake Plain-man made 0 ft.	Not applicable	Not applicable	52 64	66 70	270 290	Not applicable	Lacustrine association	Fisheries Recreation
232Ed Gulf Coast Bays and Islands	Medium embayed estuaries and barrier islands	Not applicable	Not applicable	48 65	70	280 350	Gulf Cordgrass (Tidal) HA, Sawgrass Brackish-Tidal HA	Bays and lesser inlets with wetlands	Fisheries Recreation
232Ee Lake Borgne/Sounds and Islands	Shoreline lake-embayed estuaries and barrier islands; 0-100 ft.	Holocene beach and dune sand	Hydraquents, Medisaprists; Thermic, peraquic	48 65	70	280 350	Gulf Cordgrass (Tidal) HA, Sawgrass Brackish-Tidal HA	Estuarine associated with common large bays	Fisheries Recreation

232F COASTAL PLAINS AND FLATWOODS, WESTERN GULF SECTION

232Fa Southern Loam Hills	Irregular plains; 100-300 ft.	Massive clay decomposition residuum, Alluvial gravel, sand	Paleudalts, Kandiudalts; Thermic, udic	40 60	61 68	200 280	Loblolly Pine - Oak (White, S. Red, Post) FA, S. Red Oak - White Oak - (Post Oak) - Hickory (Pignut, Mockernut, Sand) FA	Perennial streams common	Forestry
232Fb Southwest Flatwoods	Flat plains; 0-100 ft.	Middle Pleistocene alluvial sand, silt and clay	Glossaqualfs, Paleudalts; Thermic, aquic	46 55	66 70	260 280	Longleaf Pine - S. Red Oak-Black Hickory WA, Loblolly Pine - Oak (White, S. Red, Post) FA	Small to medium perennial streams common	Forestry

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

232F COASTAL PLAINS AND FLATWOODS, WESTERN GULF SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
232Fc Sabine Alluvial Valley	Flat plains; 0-100 ft.	Holocene alluvial gravelly sand; Late Pleistocene alluvial sand and silt	Fluvaquents, Udipluents; Thermic, udic,aquic	40 53	61 68	200 270	Green Ash - (American Elm)- Hackberry (Hackberry, Su- garberry) FA, Oak (Willow, Water, Laurel) - Sweetgum FA	Perennial streams common	Forestry
232Fd Neches Alluvial Valley	Flat plains; 0-100 ft.	Holocene alluvial gravelly sand	Pelluderts, Haplaquepts; Thermic, udic,aquic	40 53	61 68	200 270	Green Ash - (American Elm)- Hackberry (Hackberry, Su- garberry) FA, Oak (Willow, Water, Laurel) - Sweetgum FA	Common to many large streams, few lakes	Forestry
232Fe Piney Woods Transition	Irregular plains; 100-300 ft.	Quaternary, Tertiary massive clay and lim- onitic sand decompo- sition residuum	PaleudalFs; Thermic, udic	40 53	61 68	200 270	Shortleaf Pine -Oak (White, S. Red, Post, Black) FA, Loblolly Pine - Oak (White, S. Red, Post, Black) FA	Perennial streams few to common	Forestry

232G FLORIDA COASTAL LOWLANDS (EASTERN) SECTION

232Ga Eastern Beach and Lagoons	Flat plains-beach and lagoons; 0-100 ft.	Pleistocene beach and marine sand and lagoon- al deposits	Glossaqualfs, Haplaquods; Hyperthermic, aquic	52 60	72 73	330 360	Sand Pine WA, South Florida Slash Pine WA	Intermittent and perennial streams many	Urban Recreation
232Gb Eastern Beach and Dunes	Flat plains-beach and dunes; 0-100 ft.	Holocene beach and dune sand, swamp depo- sits and dune sand	Haplaquods, Quatzipsamments; Hyperthermic, aquic	51 60	70 73	290 365	Sand Pine WA, Live Oak (Titi) SA	Estuaries assoc- iated with rivers and lagoons	Urban Recreation
232Gc Okeechobee Plain	Flat plains; 0-100 ft.	Pleistocene beach and marine sand, weathered and oxidized	Haplaquods; Hyperthermic, aquic	51 60	70 73	290 365	South Florida Slash Pine WA, Saw Palmetto SSA	Intermittent and perennial streams few to common	Agriculture
232Gd Kissimmee River	Flat plains; 0-100 ft.	Pleistocene beach sand, weathered and oxidized	Haplaquods, Psammaquents; Hyperthermic, aquic	51 60	70 73	290 365	Saw Palmetto SSA, Sawgrass (Freshwater) HA	Intermittent and perennial streams few to common	Agriculture

234A MISSISSIPPI ALLUVIAL BASIN SECTION

234Aa Southern Mississippi River Alluvial Plain	Alluvial plain; earthquakes; 240-340 ft.	Holocene clayey-silty -sandy alluvium; Pleistocene outwash	Udipsamments, Endo- aquolls,Fluvaquents; Thermic, udic	51	58	200 230	Cottonwood-Willow Forest Oak-Sweetgum Forest Tupelo-Cypress Swamp- Forest	Mostly drained, parallel ditches; some wetlands	Cropland Forestry
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MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

234A MISSISSIPPI ALLUVIAL BASIN SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
234Ab Crowley's Ridge	Isolated low ridge; 300-500 ft.	Pleistocene loess; Cretaceous-Tertiary non-marine sediments	Hapludalfs, Haplud- ults, Paleudult; Mesic, Thermic, udic	50	57	200	Post-Blackjack Oak Wood- land, Southern Red Oak- White Oak Forest, Beech- Maple Forest	Intermittent streams & gullies	Pasture
234Ac White and Black Rivers Alluvial Plain	Alluvial plain; 300-330 ft.	Holocene silty-sandy alluvium; Pleistocene outwash	Glossaqualfs, Epi- aqualfs, Hapludalfs; Thermic, udic	50	57	200 210	Oak-Sweetgum Forest, Overcup Oak-Water Hickory Forest, Tupelo-Cypress Swamp-Forest	Drainage ditches, few natural channels; wetlands	Cropland
234Ad Baton Rouge Terrace	Flat plains; 0-100 ft.	Late Pleistocene delta deposits	Hapludalfs, Fragi- dalfs, Glossaqualfs; Thermic, udic, aquic	45 60	61 68	200 280	Loblolly Pine - Oak (Cher- rybark, Basket, Shumard) FA, Shortleaf Pine - Oak (White, S. Red, Post, Black) FA	Few streams and rivers, wetlands uncommon	Agriculture
234Ae Arkansas Grande Prairie	Irregular plains; 100-300 ft.	Late Pleistocene alluvial sand and silt	Albaqualfs, Fragi- dalfs, Fragiaqualfs, Natrudalfs; Thermic, aquic, udic	45 60	61 68	200 280	Willow Oak - (Overcup Oak) FA, Bluestem - Switchgrass HA	Rivers and streams common; few small lakes and wetlands	Agriculture
234Af Atchafalaya Alluvial Plain	Flat plains; 0-100 ft.	Holocene alluvial clay and natural levee silt and clay	Haplaquepts, Hapludalfs; Thermic, aquic	45 65	57 70	200 340	Water Tupelo (Pond Cypress) FA, Overcup Oak - Sweetgum FA	Many perennial streams, extensive wetlands	Agriculture
234Ag Arkansas Alluvial Plain	Flat plains; 0-100 ft.	Holocene natural levee silt and clay	Hapluquepts, Hapludalfs, Ochraqualfs; Thermic, aquic	45 65	57 70	200 340	Overcup Oak - Sweetgum FA, Green Ash - (American Elm)- Hackberry (Hackberry, Su- garberry) FA	Overcup Oak - Sweetgum FA	Agriculture
234Ah Macon Ridge	Flat plains; 80-325 ft.	Late Pleistocene alluvial gravel and sand	Frugiudalfs, Frugiqualfs, Glossaqualfs; Thermic, udic	45 65	61 68	200 280	S. Red Oak - White Oak - (Post) - Hickory (Pignut, Mockernut, Sand) FA, White Oak - Mockernut Hickory - (Pignut Hickory) FA	Perennial streams common, wetlands common	Agriculture Forestry
234Ai Red River Alluvial Plain	Flat plains; 0-100 ft.	Holocene natural levee silt and clay, allu- vial clay	Ustifluvents, Haplustolls, Udifluvents; Thermic, aquic	45 65	57 70	200 340	Oak (Swamp Chestnut, Cherrybark, Shumard) - Sweetgum FA, Green Ash - (American Elm) - Hackberry (Hackberry, Sugarberry) FA	Many perennial streams and rivers	Agriculture
234Aj Bastrop Ridge	Flat plains; 0-100 ft.	Late Pleistocene alluvial sand and silt	Frugiudalfs, Frugiqualfs, Glossaqualfs; Thermic, udic	45 65	61 68	200 280	S. Red Oak - White Oak - (Post Oak) - Hickory (Pig- nut, Mockernut, Sand) FA, Shortleaf Pine - Oak (White, S. Red, Post, Black) FA	Few to common streams and wetlands	Agriculture Forestry

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

234A MISSISSIPPI ALLUVIAL BASIN SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
234Ak Opelousa Ridge	Flat plains; 0-100 ft.	Late Pleistocene delta deposit	HapudalFs, Fragi- udalFs, GlossaqualFs; Thermic, udic, aquic	45 65	61 68	200 280	Loblolly Pine - Oak (Cher- rybark, Basket, Shumard) FA, Oak (Cherrybark, Bas- ket, Shumard) - Sweetgum FA	Few to common perennial streams, wetlands uncommon	Agriculture Forestry
234Al Teche Terrace	Flat plains; 0-100 ft.	Holocene alluvial clay	OchraqualFs, Haplaquolls; Thermic, aquic	45 65	57 70	200 340	Oak (Basket, Cherrybark, Shumard) - Sweetgum FA, Green Ash - (American Elm)- Hackberry (Hackberry, Sugarberry) FA	Common to many perennial streams	Agriculture
234Am St. Francis River Alluvial Plain	Flat plains; 0-660 ft.	Holocene alluvial clay, alluvial sand, silt, clay and gravel	OchraqualFs, Haplu- dalFs, Haplaquepts; Thermic, aquic	45 65	57 70	200 340	Overcup Oak - Sweetgum FA, Green Ash - (American Elm)- Hackberry (Hackberry, Sugarberry) FA	St. Francis River and tributaries, oxbow lakes	Agriculture
234An North Mississippi River Alluvial Plain	Flat plains; 0-650 ft.	Holocene alluvial clay	OchraqualFs, Haplaquepts; Thermic, aquic	45 65	57 70	200 340	River Birch - (Sycamore) FA, Overcup Oak - Sweetgum FA	Mississippi River and tributaries, oxbow lakes	Agriculture

251A RED RIVER VALLEY SECTION

251Aa Lake Agassiz Plain	Glacial lake plain 250-1150 ft.	Quaternary lake silt- clay-sand-gravel, clayey till; Proterozoic greenstone	Calciaquolls, Epia- quolls, Haploborolls; Frigid, aquic.	18 23	36 45	105 136	Big Bluestem-Indiangrass Prairie, Cordgrass Wet Prairie, Cottonwood-Willow Forest	Red River; wet- lands, streams	Agriculture
251Ab Souris/ Agassiz Stratified Fan Deposits	Plains, glacial- fluvial, dunes, 300-400 ft.	Quaternary alluvial gravel-sand-silt, eo- lian sand; Proterozoic granite & greenstone	Epiaquolls, Calciaquolls; Frigid, aquic	18 19	45	135	N. Pine-Bur Oak Savanna, Sand Reed Prairie, Big Bluestem-Indiangrass Prairie	Streams	Agriculture

251B NORTH CENTRAL U.S. MORAINAL & TILL PLAIN SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
251Ba Upper Minn- esota River/Des Moines Lobe	Gently rolling ground moraine; 746-1556 ft.	Wis. loamy-clayey till, outwash sand-gravel, lake sand-silt-clay Cretaceous sedimentary	Argiaquolls, Haplo- borolls, Natribor- olls; Frigid, udic	24 30	42 46	147 152	Big Bluestem-Indiangrass Prairie, Little Bluestem- Indiangrass Prairie, Bulrush-Cattail Marsh	Minnesota River, rivers-streams- lakes are common; deranged drainage	Agriculture

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

251B NORTH CENTRAL U.S. MORAINAL & TILL PLAIN SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
251Bb Outer Coteau des Prairies	Irregular plains; 1180-1969 ft.	Late Wis. loamy till, ice contact-outwash sand-gravel;	Argialbolls, Haplo- borolls, Haplustolls; Frigid, udic, Ustic	25 28	43 46	145 150	Big Bluestem-Indiangrass Prairie, Little Bluestem- Indiangrass Prairie, Bulrush-Cattail Marsh	Big Sioux River; lakes, streams, wetlands	Agriculture
251Bc Inner Coteau des Prairies	Irregular plains; 1500-1700 ft.	Ill. loamy till, lake lake silt & clay; Cretaceous shale	Haploborolls, Argi- ustolls; Frigid, Mesic, Udic-Ustic	25 27	44 46	170	Big Bluestem-Indiangrass Prairie, Little Bluestem- Sideoats Grama Prairie, Green Ash-Elm-Hackberry Forest	Streams, lakes wetlands	Agriculture
251Bd Northwest Iowa Plains	Gently rolling hills and plains; 1300-1600 ft.	Pleistocene loess, loamy-clay loam till, outwash sand, lake silt-clay; Cret. sed.	Haplaquolls, Argi- aquolls; Udiplu- vents; Mesic.frigid, udic	23 25	43 46	170 180	Big Bluestem-Indiangrass Prairie, Little Bluestem- Indiangrass Prairie, Bur Oak Woodland	Bi Sioux River, dendritic stream network	Agriculture
251Be Southern Des Moines Lobe	Irregular plain; 950-1300 ft.	Wis. loamy till, out- wash sand, colluvium, sheetwash alluvium, lake silt-clay;	Hapludolls, Hapla- quolls, Argiudolls; Mesic, udic	30	45	150	Big Bluestem-Indiangrass Prairie, Cordgrass Wet Prairie, Bur Oak Woodland	Des Moines River, dendritic stream network	Agriculture
251Bf Yankton Hills & Valleys	Irregular plain; 1300-1500 ft.	Wis. loamy till; Cretaceous chalk- limey shale-shale	Calciustolls, Usto- chrepts, Haplaquolls; Mesic, Ustic	28 32	40 48	150	Big Bluestem-Indiangrass Prairie, Little Bluestem- Indiangrass Prairie, Bur Oak Woodland	Streams	Agriculture

251C CENTRAL DISSECTED TILL PLAINS SECTION

251Ca Deep Loess Hills	Steep-sided hills; 900-1200 ft.	Pleistocene deep loess -clay loam till; Penn. sedimentary	Hapludolls, Argi- dolls; Mesic, udic	35	52	175 180	Little Bluestem-Side Oats Grama Prairie, Bur Oak Woodland-Savanna, Chinkapin Oak Woodland	Ephemeral streams high turbidity	Cropland
251Cb Loess Hills	Rolling low hills; 600-1200 ft.	Pleistocene loess, clay loam till; Penn. cyclic sedimentary	Hapludolls, Argi- dolls, Hapludalfs; Mesic, udic	35 39	53	175 185	Big Bluestem-Indian Grass Prairie, Little Bluestem- Sideoats Grama Prairie, Bur Oak Woodland-Savanna	Intermit. & peren streams, many channelized, pond	Cropland Pasture Urban
251Cc Central Dissected Till and Loess Plain	Low hills, smooth plain; 640-1040 ft.	Pleistocene loess, eo- lian sand, loamy till; Penn. cyclic sedi- mentary rocks	Argiudolls, Argi- aquolls, Hapludalfs; Mesic, udic	35 39	53	175 185	Big Bluestem-Indian Grass Prairie, White Oak-Red Oak Forest, Bur Oak-Mixed Oak Woodland-Savanna	Peren. streams, many channelized; riverine wetlands	Pasture cropland

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

251C CENTRAL DISSECTED TILL PLAINS SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
251Cd Claypan Till Plain	Flat, smooth plains; 700-980 ft.	Pleistocene till; Penn. cyclic sedimentary rocks	Albaqualfs, Hapludalfs, Epiaqualfs; Mesic, udic	38 39	53	185 190	Big Bluestem-Indian Grass Prairie, Little Bluestem-Sideoats Prairie, White Oak Dry Woodland	Peren. streams, many channelized; poor drainage	Cropland Pasture
251Ce West Mississippi River Hills	Low hills, few knobs; karst; 500-1000 ft.	Pleistocene till, loess; Ordovician-Miss. sedimentary	Hapludalfs, Paleudalfs; Mesic, udic	38 39	53	175 190	White-Black Oak Woodland White Oak Forest, Sugar Maple-Oak Forest	Entrenched peren. streams, ponds; reservoir	Pasture Agriculture Urban
251Cf Mississippi River and Illinois River Alluvial Plains	Flat alluvial plain and terraces; 340-550 ft.	Quaternary alluvial sand-mud, outwash sand-gravel, lake silt-clay-muck; Paleozoic carbonates-shale	Hapludolls, Endoaquolls, Hapludalfs, Udipsamments; Mesic, udic, aquic	34 39	53	163 190	Cottonwood-Willow Forest, Pin Oak Forest, Cordgrass Wet Prairie	low gradient rivers, backwater lakes, oxbow lakes	Agriculture Industry Recreation
251Cg Missouri River Alluvial Plain	Alluvial plain 570-900 ft.	Holocene silty-sandy alluvium; Pleistocene outwash	Udifulvents, Endoaquolls, Argiaquoll; Mesic, udic	35 39	53	175 190	Cottonwood-Willow Forest, Pin Oak Forest, Cordgrass Wet Prairie	Large flood-prone engineered river; riverine wetlands	Cropland
251Ch Southeast Iowa Rolling Loess Hills	Irregular plains, 650-1000 ft.	Wis. loess, Pre-Ill. loamy till, Wis. alluvium; Devonian-Miss. limestone	Argiudolls, Hapludolls, Haplaquolls; Mesic, udic	34	53	160 180	White Oak-Red Oak Forest, Big Bluestem-Indian Grass Prairie, Bur Oak-Mixed Oak Woodland-Savanna	Many steams, wetlands, lakes, reservoirs	Agriculture
251Ci East Mississippi River Hills	Deeply dissected steep ridges, narrow valleys, bluffs karst; 450-800 ft.	Pleistocene loess, loamy-sandy till; Miss. carbonates	Hapludalfs, Endoaqualfs, Eutrochrepts; Mesic, udic, aquic	33 37	49 54	168 189	White Oak-Black Oak Forest, Sugar Maple-Oak Forest, Little Bluestem-Indian Grass Hill Prairie	High gradient creeks, sinkhole ponds; springs	Agriculture, Forestry Recreation Mining
251Cj Galesburg Dissected Till Plain	Level to rolling plain with many ravines; 450-800 ft.	Pleistocene loess, loamy till; Cretaceous gravels; Paleozoic shale, sandstone, coal, carbonates	Hapludalfs, Argiudolls, Epiaqualfs; Mesic, udic, aquic	34 36	49 54	168 188	Ash-Elm-Hackberry Forest, Sugar Maple-Oak Forest, Big Bluestem-Indian Grass Prairie	Rivers, creeks	Agriculture Quarrying & Mining
251Ck Carlinsville Dissected Till Plain	Level to rolling plain with many ravines; 620-680 ft.	Pleistocene loamy till, loess; Penn. shale, sandstone, coal; Miss. carbonates	Hapludalfs, Epiaqualfs, Argiudolls; Mesic, udic, aquic	36 38	52 53	175 179	Ash-Elm-Hackberry Forest, Sugar Maple-Oak Forest, Big Bluestem-Indian Grass Prairie	Creeks	Agriculture Quarrying & Mining
251Cm Northeast Nebraska Rolling Hills	Irregular plains; 1300-1800 ft.	Pleistocene deep loess clay loam till; Cretaceous shale, chalk	Argiudolls, Haplustoll, Argiustoll; Mesic, udic, ustic	24	53	150	Big Bluestem-Indian Grass Prairie, Bur Oak Forest-Woodland, Little Bluestem-Sideoats Grama Prairie	Streams, dendritic drainage	Agriculture

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

251C CENTRAL DISSECTED TILL PLAINS SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
251Cn Lower Platte Valley	Flat alluvial plain; 1400-1500 ft.	Wis. alluvial silt, clay, sand, gravel; sandstone interbedded with shale	Haplustolls, Udiflu- vents, Ustochrepts; Mesic, ustic	24 28	53 56	160 170	Cottonwood-Willow Forest- Woodland, Cordgrass Wet Prairie	Platte River, streams, dendritic drainage	Agriculture
251Co Yorke Plains	Smooth plains; 1400-1650 ft.	Pleistocene coarse al- luvium, clay loam till, Cretaceous sand- stone, shale	Haplustoll, Argius- toll, Ustochrepts; Mesic, ustic	24 28	53	150	Big Bluestem-Indian Grass Prairie, But Oak Woodland- Savanna, Little Bluestem- Sideoats Grama Prairie	Streams	Agriculture
251Cp Pawnee City Seneca Rolling Hills	Irregular plains; 1300-1500 ft.	Pleistocene clay loam till, alluvium, collu- vium; Penn. shale, sandstone, limestone	Haplustoll, Argius- toll, Ustochrept; Mesic, ustic	32	53	180	Big Bluestem-Indian Grass Prairie, White Oak-Red Oak Forest, Cordgrass Prairie	Streams	Agriculture
251Cq Kansas River	Open hills; 950-1200 ft.	Pleistocene loess, clay loam till, sandy, silty clay residuum, alluvium; Penn. sed.	Argiustoll, Argiudoll; Mesic, thermic, udic	32 36	53 56	180	White Oak-Red Oak Forest, Big Bluestem-Indian Grass Prairie, Cordgrass Wet Prairie	Streams	Agriculture

251D CENTRAL TILL PLAINS SECTION

251Da Green River Lowland	Flat plain with prominent low ridges (paleodunes) 600-850 feet	Pleistocene outwash, eolian sands; Penn. shale, sandstone, Silurian carbonates	Argiudolls Hapludolls Endoaquolls; Mesic, udic, aquic	32 34	47 49	161 170	Cordgrass Wet Prairie, Little Bluestem Sand Prairie, White Oak-Red Oak Forest	low gradient rivers and creeks	Agriculture Recreation
251Db Western Grand Prairie	Level to rolling plain; 500-870 feet	Pleistocene clayey till, loess; Pennsylvanian shale, sandstone, coal	Argiudolls, Endoaquolls, Hapludalfs; Mesic, udic, aquic	33 36	48 49	167 170	Big Bluestem-Indiangrass Prairie	low to medium gradient creeks	Agriculture, Mining
251Dc Northern Grand Prairie	Rolling plain; 470-800 ft.	Pleistocene loamy san- dy till, lake silt, clay-muck; Penn. shale -sandstone, Paleozoic carbonates, sandstone	Argiudolls, Endoaquolls, Hapludolls; Mesic, udic, aquic	32 35	48 51	151 188	Big Bluestem-Indiangrass Prairie	low to medium gradient rivers and creeks	Agriculture
251Dd Eastern Grand Prairie	Rolling plains, Irregular plains; 500-760 feet	Wis. clayey-loamy till lake silt-clay-muck; Paleo. sandstone- shale-carbonates	Argiudolls, Endoaquolls, Argiaquolls; Mesic, udic, aquic	32 36	49 52	160 172	Big Bluestem-Indiangrass Prairie	low to medium gradient rivers and creeks	Agriculture

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

251D CENTRAL TILL PLAINS SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
251De Southern Grand Prairie	level to rolling plain; 690-790 feet	Pleistocene loamy till; Paleozoic sandstone, shale, carbonates	Argiudolls, Endoaquolls, HapludalFs; Mesic, udic, aquic	32 39	50 52	159 180	Big Bluestem-Indiangrass Prairie	low to medium gradient rivers, lakes, prairie potholes	Agriculture
251Df Springfield Plains	Level to rolling plain, few bluffs; 500-700 feet	Holocene alluvium, Pleistocene till, lake -eolian silt-sand; Penn. sandstone-shale- coal	Argiudolls, Endoaquolls, HapludalFs; Mesic; udic, aquic	34 37	52 54	169 194	Big Bluestem-Indiangrass Prairie	low to medium gradient rivers & creeks; lakes	Agriculture, Urban Mining
251Dg Kankakee Sands	Plains with hills, low dunes 620-890 ft.	Wis. beach-eolian sand outwash sand-gravel; Paleozoic shale-sand- stone-carbonates	Argiaquolls, Udi- psamments, Hapla- quolls, HapludalFs; Mesic, aquic, udic	33 40	48 52	165 170	Cordgrass Wet Prairie, Bulrush-Cattail Marsh Bur Oak-Mixed Oak Savanna-Woodland	Extensive wetland, few low gradient streams	Agriculture Urban Industry
251Dh Kankakee Marsh	Smooth plain, 620-700 ft	Holocene alluvium; Wis outwash sand-gravel, lake sediments; Dev. carbonates-black shale	Haplaquolls, Udipsamments, HapludalFs; Mesic, aquic, udic	36 38	48 50	155 160	Bulrush-Cattail Marsh	Wetlands, river and tributaries	Agriculture

251E OSAGE PLAINS SECTION

251Ea Scarpd Osage Plains	Irregular plains; 700-1100 ft.	Quaternary-Tertiary silt-clay residuum, alluvium; Penn. shales-limestones	HapludalFs, Alba- qualf, Hapludolls; Mesic, thermic, udic	39	54	190	Little Bluestem-Sideoats Grama Prairie, Big Blue- stem-Indiangrass Prairie, Cordgrass Wet Prairie	Intermittent and Perennial streams, wetlands	Pasture Urban cropland
251Eb Cherokee Plain	Smooth plain; 700-1200 ft.	Quaternary-Tertiary clay-sandy clay resid- uum, alluvium; Penn. shales-sandstones	Argiudolls, Argi- aquolls, HapludalFs; Thermic, udic	41	55	190	Little Bluestem-Sideoats Grama Prairie, Big Blue- stem-Indiangrass Prairie, Cordgrass Wet Prairie	Perennial meander ing streams; riverine wetlands	Pasture cropland
251Ec Central Tallgrass	Irregular plains; 100-300 ft.	Clayey silt to silty clay decomposition residuum	Haplustolls, Argi- dolls, Hapludolls; Mesic, thermic	Res.	Res.	Res.	Post Oak-Blackjack Oak Forest-Woodland, Big Blue- stem-Indiangrass Prairie	Postoved	Reserved
251Ed Elk Prairie	Smooth plain; 700-1200 ft.	Pre-Wis.-Tertiary clayey silt-silty clay decomp. residuum; Penn. shale-sandstone	Udorthents, Haplu- dolls, Haplustolls; Thermic, udic	41	55	190	Little Bluestem-Sideoats Prairie, Big Bluestem- Indiangrass Prairie, Cordgrass Wet Prairie	Perennial meander ing streams; riverine wetlands	Pasture cropland

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251F FLINT HILLS SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
251Fa Western Flint Hills	Smooth and irregular plains; 1500-1600 ft.	Pre-Wis.-Tertiary clay loam decomposition re- siduum; Permian red beds, shale-limestone	Haplustoll, Ustiflu- vents; Mesic,thermic, Ustic	25 35	50 60	160 190	Big Bluestem-Indiangrass Prairie, Cordgrass Wet Prairie, Cottonwood-Willow Floodplain Forest	Few perennial streams, mainly headwater streams	Agriculture
251Fb Eastern Flint Hills	Irregular plains and open hills; 950-1500 ft.	Pre-Wis.-Tertiary silty clay-cherty clay residuum, colluvium, alluvium; Permian sed.	Argiustolls, Haplu- dolls, Ustifluvents; Mesic,thermic, Ustic	25 35	50 60	160 190	Big Bluestem-Indiangrass Prairie, Cordgrass Wet Prairie, Cottonwood-Willow Floodplain Forest	Whitewater-Cotton- wood-Neosho Rivers	Agriculture
251Fc Southern Flint Hills	Irregular plains and open hills; 950-1500 ft.	Silty clay-cherty clay residuum	Argiustolls, Hapludolls, Ustifluvents Mesic and Thermic, udic	30	55	175	Big Bluestem-Indiangrass HA, Cordgrass HA, Cotton- wood-Willow FA	Reserved	Agriculture
251Fd Glaciated Flint Hills	Irregular plains and open hills; 950-1500 ft.	Holocene-Pleistocene silty-clayey colluvi- um, clay loam till, alluvium; Permian sed.	Argiustoll, Argiu- doll; Mesic,thermic, Ustic-udic	25 35	50 60	160 190	Big Bluestem-Indiangrass Prairie, White Oak-Red Oak Forest, Cottonwood Floodplain Forest	Big Blue River, Kansas River upper branch, Tuttle Creek Reservoir	Agriculture

255A CROSS TIMBERS AND PRAIRIE SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
255Aa Cross Timbers-Cherokee Prairies	Irregular plains; 100-300 ft.	Quaternary, Tertiary sandy decomposition residuum	Paleudolls, Alba- qualts, Argiudolls, Hapludolls; Thermic, aquic,udic	35 40	55 57	190 235	Little Bluestem-Yellow Indiangrass HA, Post Oak- Blackjack Oak SWA	Few small lakes and wetlands	Agriculture
255Ab Central Oklahoma Cross Timbers	Irregular plains; 100-300 ft.	Quaternary, Tertiary red clay loam decom- position with local gypsum rubble, alluv- ial sand, silt, clay	Haplustalfs, Ustochrepts, Paleustalfs, Ustifluvents; Thermic, ustic	24 35	59 63	190 240	Post Oak-Blackjack Oak SWA, Post Oak-Blackjack Oak WA, Little Bluestem-Yellow Indiangrass HA	Perennial streams common	Agriculture
255Ac Central Rolling Red Prairies	Irregular plains; 100-300 ft.	Quaternary, Tertiary sandy clay loam and sandy decomposition residuum	Paleustolls, Argiustolls, Haplustalfs; Thermic, ustic	24 35	57 64	190 230	Little Bluestem-Sideoats Grama HA, Little Bluestem- Yellow Indiangrass HA	Few lakes and wetlands	Agriculture

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

255A CROSS TIMBERS AND PRAIRIE SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
255Ad Southern Oklahoma Grand Prairie	Irregular plains; 100-300 ft.	Holocene-Illinoian limestone-clast loamy and limestone and sandstone-clast loamy colluvium; Thermic, udic	Argiudolls, Pellu- sterts, Haplus- tolls, Argiustolls;	28 64	63	200 260	Big Bluestem-Switchgrass HA, Big Bluestem-Yellow Indiangrass HA	Few wetlands	Agriculture
255Ae Cross Timbers-Central Rolling Red Prairies	Plains with low mountains; 1000-3000 ft.	Quaternary, Tertiary sandy clay loam and fine sandy loam decom- position residuum	HaplustalFs, Usta- chrepts, Paleus- talFs, Ustifluvents; Thermic, ustic	24 35	59	190 240	Post Oak-Blackjack Oak - WA, Little Bluestem-Yellow Indiangrass HA	Perennial streams few to common	Agriculture
255Af Cross Timbers - Southern Oklahoma	Irregular plains; 100-300 ft.	Quaternary, Tertiary red clay loam with gypsum rubble and fine sandy silty clay decomposition residuum	HaplustalFs, PaleustalFs, Udifluvents; Thermic, udic	24 34	63 66	225 240	Post Oak-Blackjack Oak WA, Little Bluestem-Sideoats Grama HA	Perennial streams and wetlands few	Agriculture
255Ag Red River Alluvial Plain	Irregular plains; 100-300 ft.	Pleistocene alluvial gravel, sand, silt, and clay; Holocene, Wisconsin sand, silt, and gravel	Ustifluvents, Argiustolls; Thermic, udic,aquic	53- 64	64 68	200 270	Oak (Basket-Cherrybark- Shumard)-Sweetgum FA, Green Ash-(American Elm)- Hackberry (Hackberry-Sugar- berry) FA	Few lakes and wetlands	Agriculture
255Ah Texas Eastern Cross Timbers	Tablelands; 300-500 ft.	Quaternary, Tertiary stony calcareous clay residuum	HaplustalFs, PaleustalFs; Thermic, ustic	34 39	63 66	227 250	Post Oak - Blackjack Oak SWA, Post Oak - Blackjack Oak WA	Perennial streams common	Agriculture
255Ai Texas Grand Prairie	Tablelands, moderate relief; 300-500 ft.	Quaternary, Tertiary quartz sand solution residuum	PaleustalFs, Alba- qualFs, Pelluderts; Thermic, ustic	28 40	63 70	200 260	Proscopis glandulosa SA, Little Bluestem - Yellow Indian-grass HA	Perennial streams common	Agriculture
255Aj Texas Western Cross Timbers	Tablelands, moderate relief; 300-500 ft.	Quaternary, Tertiary smectitic clay decom- position residuum; Illinoian pebbly sandy clay loam	Reserved; Thermic, ustic	24 27	63 66	225 240	Post Oak-Blackjack Oak WA, Little Bluestem-Sideoats Grama HA	Perennial streams common	Agriculture
255Ak Southwestern Timbers	Tablelands, moderate relief; 300-500 ft.	Quartz sand decom- position residuum; Smectitic clay decom- position residuum	PaleustalFs; Thermic, udic	26	65	233	Post Oak - Blackjack Oak SWA, Proscopis glandulosa SA	Perennial streams common	Agriculture

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255B BLACKLAND PRAIRIES SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
255Ba Blackland Prairie	Irregular plains; 100-300 ft.	Quaternary, Tertiary silty clay decompo- sition residuum	Pellusterts, Ochra- qualfs, Chromusterts Paleustalfs; Thermic, ustic,aquic	30 45	63 70	230 280	Little Bluestem-Yellow Indiangrass HA, Big Blue- stem (Yellow Indiangrass) HA	Perennial streams, Agriculture rivers common, few to common small lakes	

255C OAK WOODS AND PRAIRIES SECTION

255Ca Texas Claypan Savannah	Irregular plains; 100-300 ft.	Quaternary, Tertiary massive clay, clayey sand decomposition residuum	Albaqualfs, Paleustalfs; Thermic, ustic	30 42	64 72	240 280	Post Oak - Blackjack Oak SWA, Post Oak - Blackjack Oak WA	Perennial streams common	Agriculture
255Cb Reserved	Reserved	Reserved	Reserved	Res.	Res.	Res.	Reserved	Reserved	Reserved
255Cc Interior Savannah	Irregular plains; 100-300 ft.	Quaternary, Tertiary smectitic clay decom- position residuum	Paleustalfs, Haplustalfs; Thermic, ustic	30 42	64 72	240 280	Post Oak - Blackjack Oak WA, Post Oak - Blackjack Oak SWA	Perennial streams and lakes few	Agriculture
255Cd Interior Blackland Prairie	Irregular plains; 100-300 ft.	Quaternary, Tertiary limonitic sandy decom- position residuum	Ochraqualfs, Pale- ustalfs,Pellusterts; Thermic, ustic	30 45	63 70	230 280	Little Bluestem - Indian- grass HA, Big Bluestem - (Indian-grass) HA	Perennial streams, Agriculture rivers, and lakes few.	
255Ce Trinity Alluvial Valley	Irregular plains; 100-300 ft.	Holocene alluvial gravelly sand	Haplaquolls, Haplaquepts; Thermic, udic	40 53	61 68	200 270	Green Ash - (American Elm)- Hackberry (Hackberry, Su- garberry) FA, Oak (Willow, Water, Laurel) Sweetgum FA	Reserved	Agriculture
255Cf Blackland Prairie	Irregular plains; 100-300 ft.	Quaternary, Tertiary massive clay and quartz sand decompo- sition residuum	Pellusterts, Chromusterts, Paleustalfs; Thermic, ustic,aquic	30- 45	63 70	230 280	Little Bluestem - Yellow Indian-grass HA, Post Oak - Blackjack Oak SWA	Perennial streams common to many	Agriculture
255Cg Southern Texas Claypan Savannah	Irregular plains; 100-300 ft.	Pleistocene, Pliocene alluvial pebble gravel and sand	Albaqualfs, Paleustalfs; Thermic, ustic	30 42	64 72	240 280	Post Oak - Blackjack Oak SWA, Post Oak - Blackjack Oak WA	Perennial streams and rivers common	Agriculture

255D CENTRAL GULF PRAIRIES AND MARSHES SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
255Da Texas Coastal Prairies	Flat plains; 0-100 ft.	Late Pleistocene delta sand and silt, silt and clay, alluvium	Pelluderts, Albaqualfs, Argiaquolls;Thermic, hyperthermic, udic	25 55	68 70	280 320	Live Oak - Post Oak WA, Little Bluestem - Indian-grass HA	Perennial streams and rivers common	Agriculture

MAP UNIT TABLES: ECOLOGICAL UNITS OF THE EASTERN UNITED STATES -- FIRST APPROXIMATION

255D CENTRAL GULF PRAIRIES AND MARSHES SECTION (con't)

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
255Db Brazo and Brazoria Alluvial Valley	Flat plains, small area water covered; 0 - 100 ft.	Late Pleistocene delta sand/silt, silt/clay; Holocene sand,silt, clay and gravel	Hapludolls, Udfluvents, Haplustolls; Thermic, udic	25 55	68 70	280 320	Live Oak - Post Oak WA, Oak Fusiformis WA	Riverine and Lacustrine Assoc- iation, few rivers and streams	Agriculture
255Dc Marshes, Inland bays, and Barrier Islands	Flat plains, some land water covered; 0-100 ft.	Holocene lagoon, Late Pleistocene beach and near shore marine sand	Haplaquolls, Fluvaquents, Udipsaments;Thermic, hyperthermic, aquic	30 55	70 73	250 330	Saltmarsh Cordgrass HA, Salt Grass (Tidal) HA	Many perennial streams & rivers, Many bays and lagoons	Fisheries Recreation Agriculture
255Dd Sou. Texas Coastal Prairies and Savannah	Flat plains; 0-100 ft.	Middle Pleistocene alluvial sand, silt, clay and alluvium	PaleudalFs, Ochraqualfs; Thermic, udic	25 55	68 70	280 320	Post Oak - Blackjack Oak SWA, Little Bluestem - Gulf-dune Crown Grass HA	Perennial streams and rivers common	Agriculture

411A EVERGLADES SECTION

411Aa Lake Okeechobee	Freshwater lake; 0-100 ft.	Holocene freshwater marsh peat and clay	Medisaprists, Hydraquents; Hyper- thermic, peraquents	50 64	72 77	230 365		Lacustrine bordered by palustrine	Fishery Recreation
411Ab Everglades	Flat plains; 0-100 ft.	Holocene freshwater marsh peat and clay	Medisaprists; Hyperthermic, aquic	50 64	72 77	330 365	Sawgrass HA, Spatter-dock (Tropical) HA, Gumbo Limbo- Florida Strangler Fig FA	Palustrine assoc- iated with swamps	Agriculture Water shed
411Ac Southern Slope	Flat plains; 0-50 ft.	Holocene algae and mud carbonate; lime- stone	Fluvaquents; Hyperthermic, aquic	50 64	72 77	330 365	Red Mangrove FA, Sawgrass HA, Poisonwood, Spanish Stopper FA	Estuarine assoc- iated with coast- al marshes	Agriculture
411Ad Atlantic Coastal Ridge	Flat plains; 0-100 ft.	Pleistocene Miami oolitic limestone	Sulfahemist, Sulfaquents; Hyperthermic, aquic	50 64	72 74	330 365	South Florida Slash Pine WA, S. Hairgrass HA, Sawgrass (Freshwater) HA	Palustrine assoc- iated with upland flats	Urban Agriculture
411Ae Coastal Lowlands, Tidal Marshes and Bays	Flat plains-tidal marshes and embayed estuaries; 0-100 ft.	Holocene freshwater marsh peat and clay, mangrove swamp deposit	Sulfihemists; Hyperthermic, aquic	50 64	72 77	330 365	Red Mangrove FA, Sawgrass (Freshwater) HA, Saltwort DSA	Freshwater marshes common	Fisheries Recreation
411Af Big Cypress Spur	Flat plains; 0-100 ft.	Holocene algal and mud carbonate, calcareous sand solution residuum	Haploquents, Psammaquents; Hyperthermic, aquic	50 64	72 77	330 365	Pondcypress (Tropical) WA, South Florida Slash Pine WA, Coastal Hair-grass HA	Swamps common	Agriculture Forestry
411Ag Florida Keys and Biscayne Bay	Flat plains and large embayed estuary; 0-66 ft.	Late to middle Pleistocene Key Largo Limestone	Troposaprists; Isohyperthermic, aquic	50 64	72 77	330 365		Swamps common, Biscayne Bay and tidal marshes	Fishery Navigation

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M411A DRY HUMID MOUNTAINS SECTION

Subsection	Geomorphology; Elevation	Quaternary geology; Stratig. & lithology	Soil taxa; Temp. & moisture regimes	-----Climate----- P(in) T(F.) Gs(d)			Potential Vegetation	Surface water characteristics	Human use
M411Aa Northern Karst Plain	Flat alluvial plains and terraces -karst limestone upland; 0-2297 ft.	Middle Tertiary to Recent chalky lime- stone and calcarenite overlain by deposits	Tropudalfts, Paleu- dults, Haploorthoxs;	65	77	365	Uvilla FA, Mamey FA, Mangle Colorado FA	Reserved	Agriculture Forestry
M411Ab Interior Plateau	Plateau and mountains; 164-2963 ft.	Early Cretaceous to Early Tertiary vol- canic and plutonic	Tropohumults, Tro- pudults, Eutropepts;	75	76	365	Tabonuco-Motillo FA	Reserved	Agriculture Forestry
M411Ac Central Mountains	High mountains; 164-4396 ft.	Early Cretaceous to Early Tertiary vol- canic to plutonic	Tropohumults, Eutro- pepts;	85	75	365	Palma de Sierra FA Tabonuco-Motillo FA	Reserved	Forestry
M411Ad Southern Mountain Slopes	Southern mountain slopes; 164-1312 ft.	Early Cretaceous to Early Tertiary vol- canic to plutonic	Eutropepts, Haplu- dolls, Fluvaquents;	48	79	365	Tabonuco-Motillo FA	Reserved	Forestry
M411Ae Southern Karst Plain, Low- lands and Islands	Southern karst plain and lowlands; 0-1312 ft.	Middle Tertiary to Recent chalky lime- stone and calcarenite overlain by deposits	Ustropepts, Calcicus- tolls, Haplustults;	36	79	365	Gumbolimbo WA, Sebucan- Erivo SA	Reserved	Undeveloped

APPENDIX

SELECTED GLOSSARY

ARCINFO FORMAT - A proprietary format for GIS data developed by ESRI, Redlands, California.

BIOLOGICAL COMPONENT - Living parts of ecosystems consisting of flora and fauna that respond and adapt to changes in the physical components and which help characterize the ecological potential of a classification unit.

ECOLOGICAL LAND CLASSIFICATION AND MAPPING - A hierarchical, multi-factor approach to categorizing and delineating, at different levels of resolution, areas of land and water having similar capabilities and potentials for management.

ECOLOGICAL UNIT - A mapped landscape unit designed to meet management objectives, comprised of one or more ecological types.

ECOLOGICAL TYPE - A category of land and/or water having a unique combination of biological potential, soil, landscape feature, and climate, and differing from other ecological types in its ability to produce organisms and respond to management.

ECOSYSTEM - A complete interacting system of organisms and their environment.

LANDSCAPE - A heterogeneous land area composed of a cluster of interacting ecosystems that is repeated in a similar form throughout, and can be viewed at one time from one place.

MULTI-FACTOR - Classification methodology whereby biological and physical components are evaluated simultaneously to arrive at the appropriate ecological potential of a map unit.

POTENTIAL VEGETATION - The biotic community that would be established if all successional sequences of its ecosystem were completed without additional human-caused disturbance under present environmental conditions.

SOIL GREAT GROUP - A category of soil classification where soils are placed together based on close similarities in kind, arrangement, and degree of expression of horizons; close similarities in soil moisture and temperature regimes; and similarities in base status.

SOIL MOISTURE REGIME - Classes of soil moisture that are based on the assumption that the soil supports whatever vegetation it is capable of supporting. Moisture regimes are defined in terms of the ground-water level and in terms of the absence or presence of water held at a tension of <15 bars in the moisture control section by periods of the year.

SOIL TEMPERATURE REGIME - The characteristic temperature regime of a soil that is described by the mean annual soil temperature, the average seasonal fluctuations from that mean, and the mean warm or cold seasonal soil-temperature gradient within the main root zone, which is the zone from a depth of 5 to 100 cm.

SUBSECTION - An ecological unit in the subregion planning and analysis scale of the National Hierarchical Framework corresponding to subdivisions of a Section into areas with similar surficial geology, lithology, geomorphic process, soil great groups, subregional climate, and potential vegetation.

SUBREGION - A scale of planning and analysis in the National Hierarchical Framework that has applicability for strategic, multi-forest, statewide, and multi-agency analysis and assessment. Subregions include Section and Subsection ecological units.

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ACKNOWLEDGEMENTS

Information in this table was developed by the combined efforts of many Forest Service personnel and other persons affiliated with federal and state governments, and non-governmental organizations.

REGIONAL COMPILATION AND COORDINATION

- Constance Carpenter, Northeastern Area State and Private Forestry
- Susan Hooks, Southern Region
- Jim Keys, Southern Region
- Henry McNab, Southern Research Station
- Walter Russell, Washington D.C.

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- Don Faber-Langendoen, Ecologist, The Nature Conservancy Midwest Regional Office
- James K. Jordan, Ecologist, Ottawa National Forest
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- IA: -Constance Carpenter, Hydrologist, Northeastern Areas State and Private Forestry
- IL: -Max Hutchinson, Ecologist, The Nature Conservancy;
- IN: -Andy Rorick, Geologist, Shawnee National Forest, Carbondale, Illinois
- IN: -Michael Homoya, Ecologist, Division of Nature Preserves, Department of Natural Resources, Indianapolis, IN
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- MI: -Joseph Gates, Soil Scientist, Huron-Manistee National Forest
- MI: -Eunice Padley, Eastern Regional Office
- MN: -Barbara Leuelling, Soil Scientist, Superior National Forest
- MN: -James Jordan, Ecologist, Ottawa National Forest
- MN: -Dave Shadis, Chippewa National Forest
- MO: -Timothy A. Nigh, Missouri Department of Conservation, Jefferson City, MO
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- WI: -James Jordan, Soil Scientist, Ottawa National Forest
- NH: -Stephen Fay, Soil Scientist, USFS, White Mountain National Forest
- NJ: -Craig Coutros, Forester, New Jersey State Forest Service
- NY: -Constance Carpenter, Hydrologist, USFS, Northeastern Area, State and Private Forestry
- OH: -Scott Brockman, Geologist, Ohio Geologic Survey,
- PA: -Dan Devlin, Chief, Resource Planning, Pennsylvania Bureau of Forestry
- RI: -Marie-Louise Smith, USFS, Northeast Forest Experiment Station, Durham, NH
- TN: -Joy Broach, Tennessee Department of Environment and Conservation

-Milo Pyne, Tennessee Department of Environment and Conservation
 VT: -Diane Burbank, Ecologist, USFS, Green Mountain and Finger Lakes National Forests Rutland, VT
 WV: -Dr. Kenneth Carvell, Professor Forestry, ret., West Virginia University
 -Thomas DeMeo, Ecologist, Monongahela National Forest

KY, VA, NC, TN, NC, SC, GA, PR, TX, OK: Jim Keys, Soil Scientist; Susan Hooks Ecologist; Henry McNab, Research Forester; Southern Region and Station
 FL, AL, MS, LA, AR: Jim Keys, Soil Scientist; Susan Hooks, Ecologist; Southern Region

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 -William Moriarity, Soil Scientist, Allegheny National Forest
 -John Nesser, Regional Soil Scientist, Missoula, MT.
 -John Novosad, Soil Scientist, Kisatchie National Forest
 -Eunice Padley, Ecologist, USFS Eastern Regional Office
 -Bill Pell, Ouachita National Forest
 -Wendy Pistrang, Chattahoochee National Forest
 -Robert Maini, Environmental Scientist, University of New Hampshire-Durham
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 -Robin Roecker, Ecologist, Francis Marion and Sumter National Forests
 -Steve Roy, Fishery Biologist, Green Mountain and Finger Lakes National Forests
 -Bobby Scott, Soil Scientist, Cherokee National Forest
 -Steve Simon, Ecologist, National Forests in North Carolina
 -David Taylor, Ecologist, Daniel Boone National Forest
 -Linda Tracy, Geologist, Monongahela National Forest
 -Kenneth Vogt, Natural Resource Conservation Service, Columbia, MO
 -Jon Walker, Hydrologist, Daniel Boone National Forest
 -Linton Wright, Soil Scientist, Monongahela National Forest

It is impossible to properly thank all the folks from the various state, federal, and non-government organizations that have assisted in this project. The following list, organized subregionally, includes additional people that have provided continued assistance in unit development, technical review, and information gathering.

New England and New York States

-Scott Anderson, Asst. State Soil Scientist, NY
 -Charles Cogbill, Ecologist, Plainfield, VT
 -Art Degaetano, Climatologist, Northeast Regional Climate Center, NY
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- Carol Reschke, Ecologist, New York Natural Heritage Program
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- Stu Behling, Geologist, Superior National Forest
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SCIENTIFIC NAMES/VEGETATIVE SPECIES

This list contains the scientific names of common vegetative species that comprise alliances of potential natural communities used in this table. Common names follow those used by Weakley and others (1995).

American Beech - *Fagus grandifolia*
 American Elm - *Ulmus americana*
 Ashe's Red-Cedar - *Juniperus ashei*
 Atlantic White Cedar - *Chamaecyparis thyoides*
 Bald Cypress - *Taxodium distichum*
 Bayahonda - *Prosopis pallida*
 Big Bluestem - *Andropogon gerardii*
 Bitter-nut Hickory - *Carya cordiformis*
 Black Oak - *Quercus velutina*
 Black Ash - *Fraxinus nigra*
 Black Hickory - *Carya texana*
 Blackjack Oak - *Quercus marilandica*
 Black Needlerush - *Juncus roemerianus*
 Cabbage Palmetto - *Sabal palmetto*
 Cherrybark Oak - *Quercus pagoda*
 Chestnut Oak (Rock Chestnut Oak) - *Quercus prinus*
 Chinquapin Oak - *Quercus muehlenbergii*
 Diamondleaf Oak - *Quercus laurifolia*
 Dildo - *Pilosocerenes rodyenii*
 Dove Plum - *Coccoloba diversifolia*
 Eastern Juniper - *Juniperus virginiana* var. *virginiana*
 Erizo - *Melocactus intortus*
 Fraser Fir - *Abies fraseri*
 Green Ash - *Fraxinus pennsylvanica*
 Gulf Cordgrass - *Spartina spartinae*
 Gulf-Dune Paspalum - *Paspalum monostachyum*
 Gumbo Limbo - *Bursera simaruba*
 Hackberry - *Celtis occidentalis*
 Honey Mesquite - *Prosopis glandulosa*
 Little Bluestem - *Schizachyrium scoparium*
 Live Oak - *Quercus virginiana*
 Loblolly Bay - *Gordonia lasianthus*
 Loblolly Pine - *Pinus taeda*
 Longleaf Pine - *Pinus palustris*
 Mamey - *Mammea americana*
 Melon de Costa - *Melocactus intortus*
 Mockernut Hickory - *Carya alba*
 Montillo - *Sloanea berteriana*
 Northern Red Oak - *Quercus rubra*
 Overcup Oak - *Quercus lyrata*
 Oxhorn Bucida - *Bucida buceras*
 Palma de Sierra - *Prestoea montana*
 Pignut Hickory - *Carya glabra*
 Pitch Pine - *Pinus rigida*
 Pocosin Pine - *Pinus serotina*
 Poisonwood - *Metopium toxiferum*
 Pond Cypress - *Taxodium ascendens*
 Pond Pine - *Pinus serotina*
 Post Oak - *Quercus stellata*

Red Mangrove - *Rhizophora mangle*
 Red Spruce - *Picea rubens*
 River Birch - *Betula nigra*
 Salt Grass - *Distichlis spicata*
 Saltmarsh Cordgrass - *Spartina alterniflora*
 Saltwort - *Batis maritima*
 Sand Hickory - *Carya pallida*
 Sand Pine - *Pinus clausa*
 Saw Palmetto - *Serenoa repens*
 Sawgrass - *Cladium mariscus* ssp. *jamaicense*
 Scarlet Oak - *Quercus coccinea*
 Sebucan - *Pilosocereus rodyenii*
 Shagbark Hickory - *Carya ovata*
 Shumard Oak - *Quercus shumardii*
 Sierra Palm - *Pretoea montana*
 Slash Pine - *Pinus elliottii* var. *elliottii*
 Southern hairgrass - *Muhlenbergia filipes*
 Southern Red Oak - *Quercus falcata*
 South Florida Slash Pine - *Pinus elliottii* var. *densa*
 Shortleaf Pine - *Pinus echinata*
 Spanish Stopper - *Eugenia foetida*
 Strangler Fig - *Ficus aurea*
 Sugarberry - *Celtis laevigata*
 Sugar Maple - *Acer saccharum*
 Swamp Laurel Oak - *Quercus laurifolia*
 Swamp Ti-Ti - *Cyrilla racemiflora*
 Sweetgum - *Liquidambar styraciflua*
 Switchgrass - *Panicum virgatum*
 Tabonuco - *Dacryodes excelsa*
 Turk's Cap Cactus - *Melocactus intortus*
 Sycamore - *Platanus occidentalis*
 Tracy's Beaksedge - *Rhynchospora tracyi*
 Uvilla - *Coccoloba diversifolia*
 Virginia Pine - *Pinus virginiana*
 Water Oak - *Quercus nigra*
 Water Tupelo - *Nyssa aquatica*
 White Oak - *Quercus alba*
 White Pine - *Pinus strobus*
 Willow Oak - *Quercus phellos*
 Yaupon Holly - *Ilex vomitoria*
 Yellow Birch - *Betula alleghaniensis*
 Yellow Buckeye - *Aesculus flava*
 Yellow Indian-grass - *Sorghastrum nutans*
 Yellow Poplar - *Liriodendron tulipifera*
 Yellow Water Lily (Spatterdock) - *Nuphar lutea*

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FIRST APPROXIMATION

USDA Forest Service
Southern Region
Eastern Region
Northeastern Area State and Private Forestry
Northeastern and North Central Forest Experiment Stations
Southern Research Station
Washington Office



This map depicts regional and subregional ecological units developed according to the classification scheme of the National Hierarchical Plan of Ecological Zones (Jowers et al. 1994). The map presents the first iteration of Subsections which nest within and refine successively larger ecological units (Bailey et al. 1995) revised, ultimately, being bounded by delineations of the Humid Temperate Forest and Tropical Dry Forest of the continental United States and Puerto Rico.

Ecological units are identified at all hierarchical levels by the integration of physical and biological components. Environmental parameters used in the delineation of ecological units include geology, hydrology, potential vegetation, and water. All components are considered and evaluated in the presence of boundaries, but their importance varies with scale.

Subsections were developed, mapped, and described in participation with individuals of numerous federal and state agencies and non-governmental organizations.

This map depicts regional and subregional ecological units developed according to the classification scheme of the National Hierarchical Framework of Ecological Units (Avers et al., 1994). The map presents the first iteration of Subsections which nest within and refine successively larger ecological units (Bailey et al., 1995 revised), ultimately, being bounded by delineations of the Humid Temperate

0 100 200 300 400 500 Kilometers

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|------|------------------------------|--|--|
| 2232 | White River Hills Subsection | 232C ATLANTIC COASTAL PLATWOODS SECTION | Kelly, J. L.; Carpenter, C.; Hanks, S.; Koning, F.; Nichols, W. W.; Small, W. E.; Smith, H. L. 1995. Ecological values of the eastern United States - first approximation (map and booklet of map and text). Atlanta, GA: U.S. Department of Agriculture, Forest Service. Available as a 3.5/5.0-DISK, also available on CDROM containing of GIS coverage in ARC/INFO format, and map unit descriptions of subsections and sections. |
| 2234 | Pharm Dam Borer Subsection | 232C Upper Tertiary Subsection | |
| 2236 | Black River Borer Subsection | 232C Lower Tertiary Subsection | |
| 2238 | Outer Creek Borer Subsection | 232C Middle Tertiary Subsection | |
| 2239 | Outer Creek Borer Subsection | 232C Quaternary Subsection | |
| 2244 | Black River Borer Subsection | 232C Coastal Marsh and Island Subsection | |
| 2246 | Springfield Plain Subsection | | |